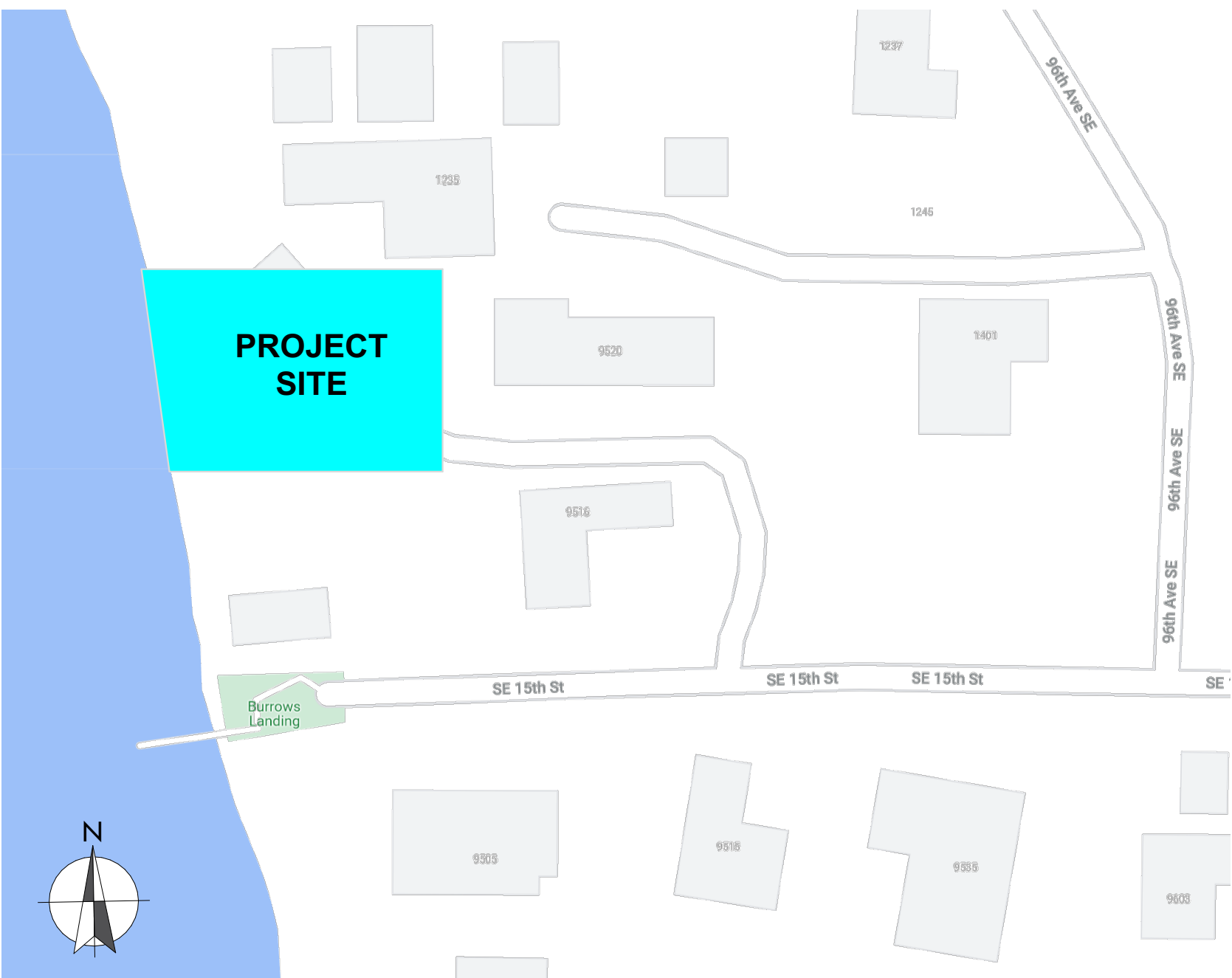


VICINITY MAP



LEGAL DESCRIPTION:

THAT PORTION OF GOVERNMENT LOT 3, SECTION 6, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M., IN KING COUNTY, WASHINGTON  
FOR COMPLETE LEGAL DESCRIPTION SEE SURVEY SHEETS

LEGEND

- W WATER
- LV LOW VOLTAGE
- P POWER
- SD STORM DRAIN
- SS SANITARY SEWER
- WV WATER VALVE
- WM WATER METER
- HB HOSE BIB
- LIMITS OF DISTURBANCE
- PROPERTY LINES
- SETBACK LINES
- AREA OF STEEP SLOPE
- NEW BUILDING

AREA OF SITE DISTURBANCE:

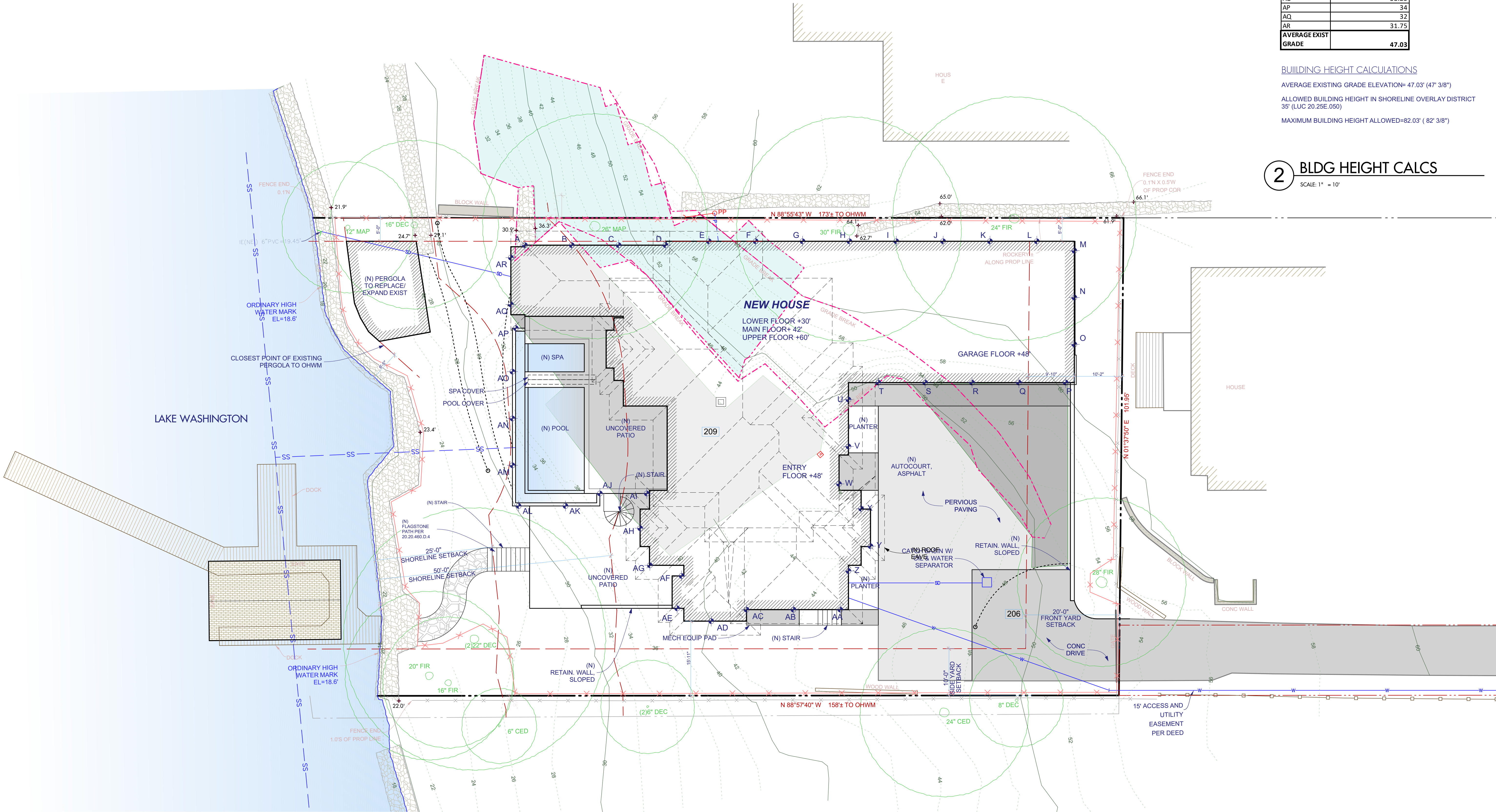
15,363 SF

POINT	SPOT ELEVATION EXIST.
A	33
B	42
C	47
D	54.5
E	58.5
F	61
G	62.75
H	63
I	62
J	61.5
K	61.5
L	61.5
M	61.5
N	60.75
O	60.5
P	60
Q	57.75
R	56.75
S	52
T	49.75
U	48.5
V	45
W	44
X	44.25
Y	44.25
Z	44.25
AA	44.5
AB	43.75
AC	42.25
AD	40
AE	38.5
AF	39
AG	38.25
AH	38.25
AI	38.5
AJ	38.25
AK	35
AL	31.25
AM	32.25
AN	36
AO	38.25
AP	34
AQ	32
AR	31.75
AVERAGE EXIST GRADE	47.03

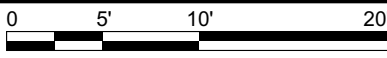
BUILDING HEIGHT CALCULATIONS

AVERAGE EXISTING GRADE ELEVATION= 47.03' (47' 3/8")  
ALLOWED BUILDING HEIGHT IN SHORELINE OVERLAY DISTRICT 35' (LUC 20.25E.050)  
MAXIMUM BUILDING HEIGHT ALLOWED=82.03' (82' 3/8")

2 BLDG HEIGHT CALCS  
SCALE: 1" = 10'



ARCHITECTURAL SITE PLAN PROPOSED  
SCALE: 1" = 10'



GELOTTE HOMMAS DRIVDAHL  
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425.828.3081  
THEARTOFARCHITECTURE.COM

Swasand Residence  
9518 SE 15th STREET  
BELLEVUE, WA 98004

Job No. 2018  
Project Manager: TB  
Issue Date: 9/30/2021

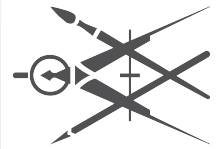
NO.	DATE	REVISION

ARCHITECTURAL SITE  
PLAN PROPOSED

A1.02

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# Swasand Residence

9518 SE 15th STREET  
BELLEVUE, WA 98004

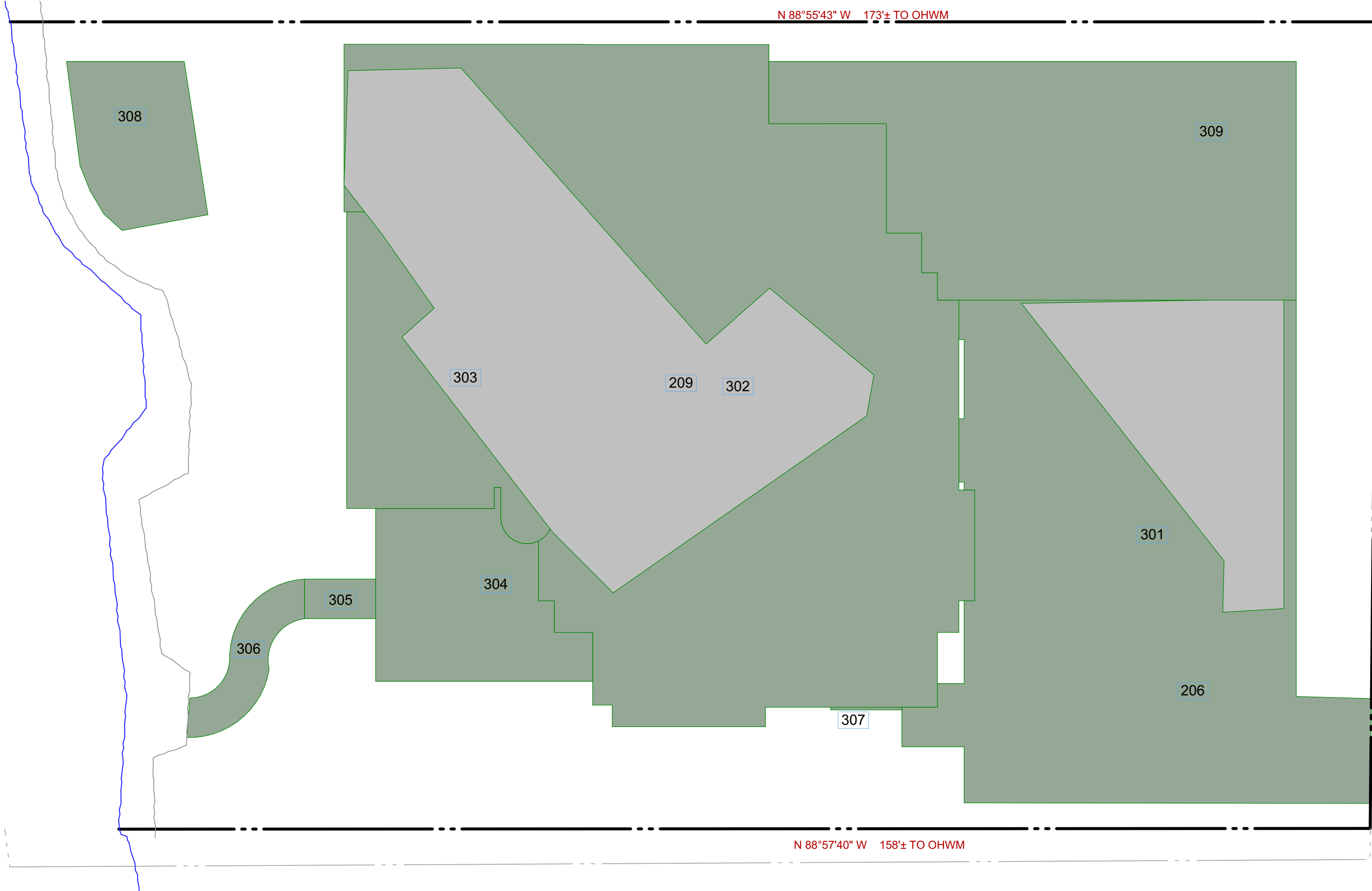
Job No. 2018  
Project Manager: TB  
Issue Date: 9/30/2021

NO.	DATE	REVISION

LOT COVERAGES

## A1.04

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### 3 HARD SURFACE COVERAGE

SCALE: 3/32" = 1'-0"

#### HARD SURFACES CALCULATIONS:

GROSS LOT AREA: 16,505 SF

HARD SURFACE ALLOWED: 75 % MAX = 12,379 SF

HARD SURFACE PROPOSED: 10,904 SF

	HARD SURFACE COVERAGE	
301	AUTO COURT	2,835.95
302	ROOF	4,587.36
303	MAIN FLOOR PATIO	896.07
304	LOWER PATIO	483.79
305	EXTERIOR STEPS	45.00
306	PATH	116.33
307	EXTERIOR STEPS	3.00
308	PERGOLA	300.09
309	GARAGE	1,635.96
		<b>10,903.54 sq ft</b>

#### BUILDING AREA

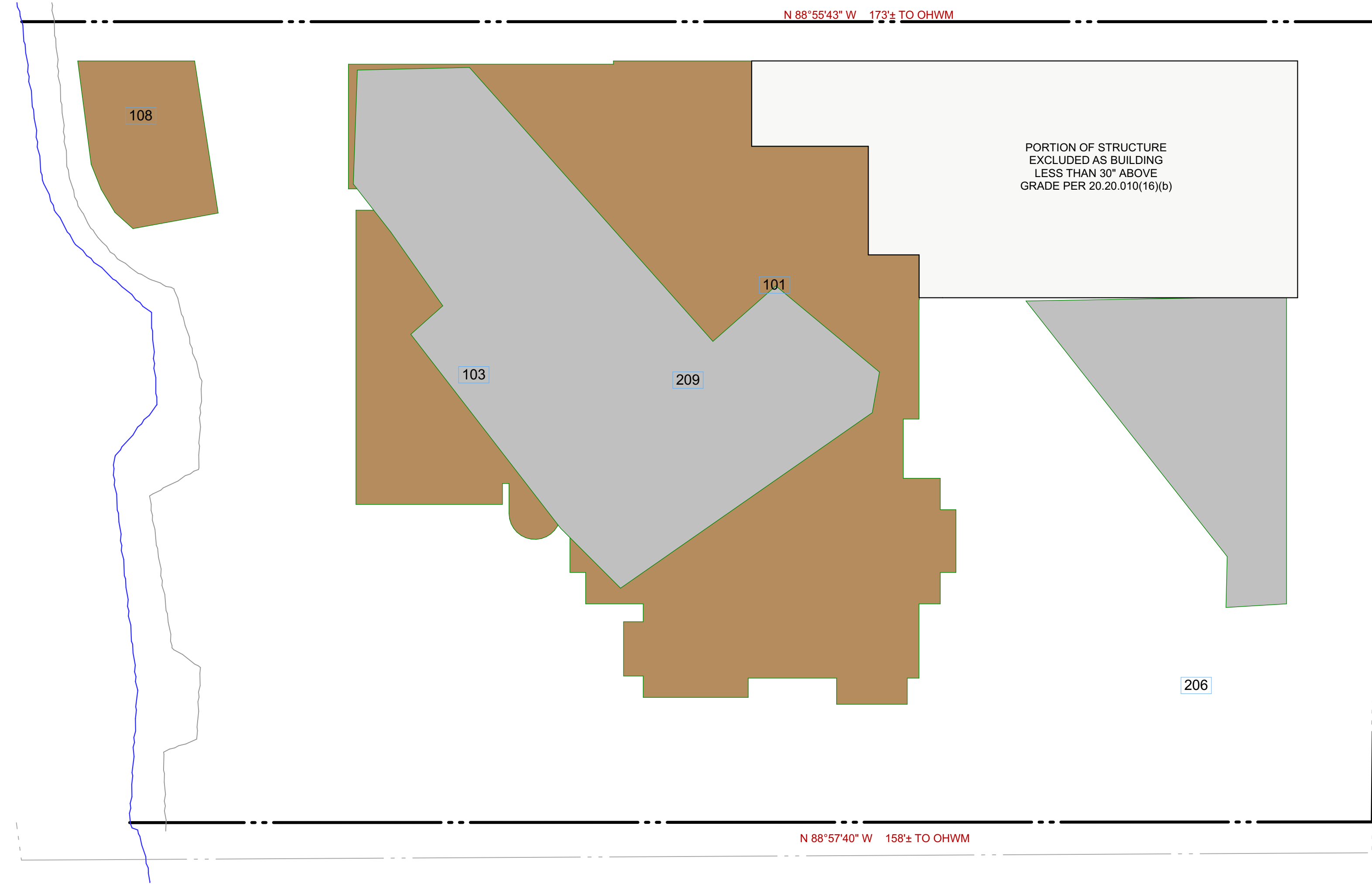
LOWER FLOOR:  
CONDITIONED SPACE : 1737 SF  
STORAGE/MECH: 379 SF  
PATIO: 700 SF  
PERGOLA?

MAIN FLOOR:  
CONDITIONED SPACE: 3407 SF  
GARAGE: 1402 SF  
DECK, PORCH,  
EXT. STAIRS: 1807 SF

UPPER FLOOR:  
CONDITIONED SPACE: 1958 SF

TOTAL CONDITIONED SPACE: 7102 SF  
TOTAL DECK, PATIOS ETC: 2507 SF  
TOTAL GARAGE,  
MECH, STORAGE: 1781 SF

LAKE WASHINGTON



### 1 LOT COVERAGE DIAGRAM

SCALE: 3/32" = 1'-0"

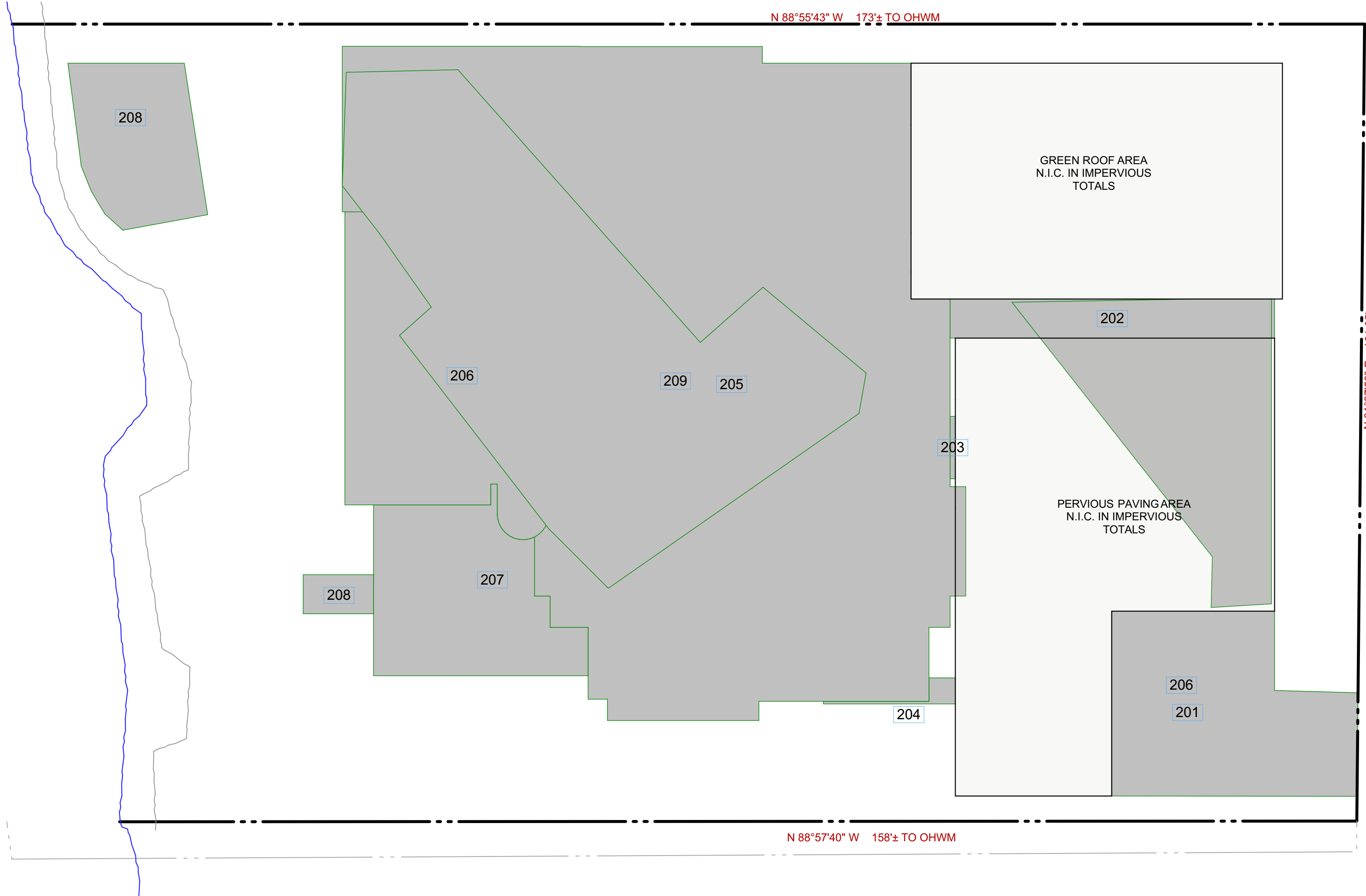
#### LOT COVERAGE CALCULATIONS:

GROSS LOT AREA : 16,505 SF

NET LOT AREA : GROSS LOT - STEEP SLOPE AREA  
16,505 - 848 = 15,657 SF

LOT COVERAGE ALLOWED: 35 % OF NET AREA = 5480 SF  
LOT COVERAGE PROPOSED: 5,050 SF

	STRUCTURAL COVERAGE	
101	(N) HOUSE	3,605.94
103	MAIN FLOOR PATIO	1,143.82
108	PERGOLA	300.09
		<b>5,049.84 sq ft</b>



### 2 IMPERVIOUS SURFACE DIAGRAM

SCALE: 3/32" = 1'-0"

#### IMPERVIOUS SURFACE CALCULATIONS:

LOT AREA : 16505 SF

IMPERVIOUS AREA ALLOWED: 45 % MAX : 7,427 SF

IMPERVIOUS AREA PROPOSED: 7,374 SF

	IMPERVIOUS SURFACE COVERAGE	
201	AUTO COURT	635.01
202	AUTO COURT	207.50
203	ENTRY	5.33
204	WALK & STEPS	15.75
205	ROOF	4,785.37
206	MAIN FLOOR PATIO	896.07
207	LOWER PATIO	483.79
208	EXTERIOR STEPS	45.00
208	PERGOLA	300.09
		<b>7,373.92 sq ft</b>



# Critical Areas Report

---

## Swasand Residence City of Bellevue

September 24, 2021

Prepared for:

City of Bellevue  
PO Box 90012  
Bellevue, WA 98009 9012

Prepared on behalf of (applicant):

Chris and Jami Swasand  
C/O Gelotte Hommas Drivdahl  
Architecture  
2340 130th Ave NE, Suite 100  
Bellevue, WA 98005





Title-page image: View of front of subject property – looking east (June 18, 2021).

Report Disclaimer: The information contained in this report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria outlined in the methods section. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, state and federal regulatory authorities. No other warranty, expressed or implied, is made.



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The Watershed Company Reference Number: 210503

The Watershed Company Contact: Kenny Booth, AICP



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# 1. Introduction

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## 1.1 Background and Purpose

The purpose of this report is to document potential critical area impacts, including steep slope critical areas and corresponding buffers/setbacks, as well as shoreline setback impacts associated with the proposed residential redevelopment project located on the shore of Lake Washington in the City of Bellevue, Washington (Figure 1). The project area is comprised of a single lot which is currently developed with a single-family residence (built in 1946) with an attached garage and driveway situated amongst an area of steep slope. The existing home recently experienced extensive fire damage and is not habitable. The property includes a terraced yard with concrete surfaces, grassy areas, a rockery adjacent to the house as well as along the shoreline area, and a rock bulkhead (replaced in 2017) and pier with covered moorage structure. Portions of proposed improvements will occur within or adjacent to regulated steep slopes as well as within proximity to the shoreline.

The applicant proposes to redevelop the existing residence and driveway with a new single-family home and a garage. The proposed residence and associated hardscapes would be located within portions of the on-site steep slope area and the overlapping standard top-of-slope buffer and toe-of-slope setback. Some improvements will also occur within the standard shoreline structure setback and shoreline vegetation conservation area.

Bellevue Land Use Code (LUC) 20.25H.230 requires compliance with specific critical areas report criteria as part of any modification to a critical area or critical area buffer/setback, including a demonstration of how the development leads to equivalent or better protection of critical area functions and values. This report fulfills these criteria. Further, pursuant to LUC 20.25H.250(C)(1), this report has been prepared in conjunction with a geotechnical analysis report by PanGEO, Inc. For technical details related to geologic hazard areas, reference the project geotechnical report and/or any subsequent documentation addressing geotech-specific City comments. In addition, this report includes a demonstration of compliance with the City's shoreline regulations (LUC 20.25E), including an assessment of impacts within the shoreline structure setback and shoreline vegetation conservation area. This report presents a detailed discussion of the habitat and vegetation on-site and how the proposed development can be achieved with no net loss of critical area and shoreline functions and values.



## 1.2 Methods

One landscape designer, one scientist, and one arborist visited the site on June 18, 2021, to evaluate existing site conditions. Vegetative structure and composition, special habitat features, presence of wildlife species and sign, and human disturbance were assessed, which inform the discussion of habitat are presented in this report. Observations of established trees and dominant plant species on-site were utilized in preparation of the associated Mitigation Plan (Appendix A). The results of the arborist assessment can be found in the Arborist Report – Swasand Residence, dated September 2021.

## 2. Subject Property

---

### 2.1 Location and Description

The subject project is located at 9518 SE 15th Street (parcel 0624059080) in the City of Bellevue. Lake Washington borders the project area to the west, and single-family residences are located to the north, south, and east. The subject property is approximately 0.38 acres, extending approximately 150 feet (or greater) landward from the lake. The parcel includes approximately 100 feet of shoreline frontage. There is an approximate 41-foot elevation change from the edge of the parcel to the lake. The property includes an existing single-family residence, situated northwest of the center of the site. An attached garage extends southeast of the residence. A shared easement provides access from SE 15th Street to the residence/garage. Several mature trees are located throughout the site, while the area east of the residence is predominately vegetated with trees and grass, and the area west of the residence is predominantly vegetated with ornamental and non-native vegetation, including extensive areas of lawn and rockery adjacent to the shoreline. Existing on-site vegetation is discussed in detail in Section 3 of this report.

The site is situated in the East Lake Washington sub-basin of the Cedar-Sammamish Watershed (WRIA 8). According to the Natural Resources Conservation Service Web Soil Survey, the site is characterized by Kitsap silt loam soils. Any surface or groundwater on the site would be expected to flow west toward the lake. No wetlands or streams were identified on-site during field investigations.



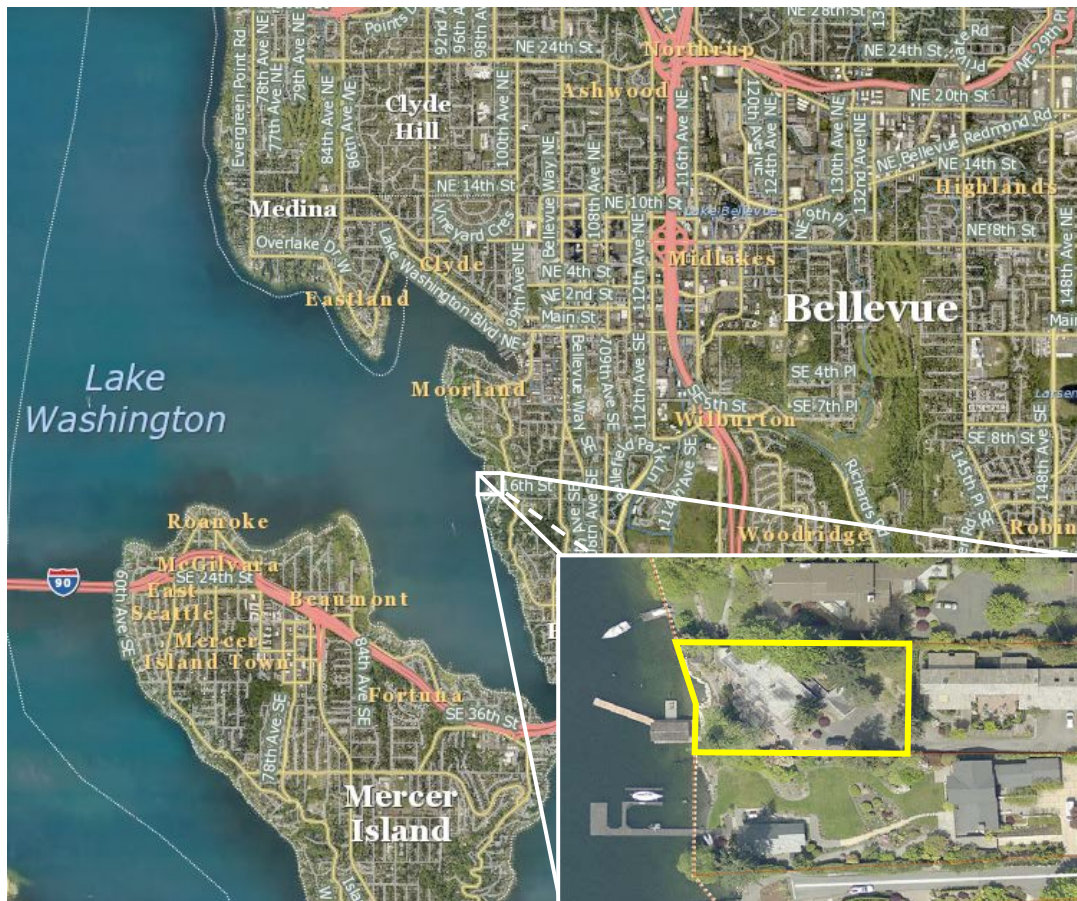


Figure 1. Vicinity and street level map showing the approximate location of the study area (outlined in yellow) (Image courtesy of King County iMap, 2019)

## 3. Critical Areas

### 3.1 Geologic Hazard Areas

The subject property contains an area of steep slopes that meet the City's definition for critical area as a type of geologic hazard area. The area of naturally occurring steep slope has been determined by the geotechnical engineer and is located near the north central portion of the parcel, extending on the northerly adjacent parcel. Vegetation located in and adjacent to this critical area provides a number of functions, discussed below.



### 3.1.1 Habitat Functions

Vegetation, whether located within or outside of critical areas, inherently provides some habitat functions. Habitat functions of the subject property have been assessed and are discussed in this section, consistent with the requirements of City of Bellevue's Land Use Code.

#### 3.1.1.1 *On-site Habitat*

The most forested area of the site occurs within the northern portion of the property, adjacent to the residence and along the entirety of the northern property line. A total of ten significant trees are found in this area – a Crimson King Norway maple, Corkscrew willow, two Bigleaf maples, Black cottonwood, three Douglas-firs, and two shore pines. The understory is vegetated, with Eriobotrya, English Ivy, huckleberry, hawthorn, rhododendron, scotchbroom, madrone, beaked hazelnut, and holly. The northeastern portion of the site contains a grassy area. The southern portion of the site includes four significant trees – a western red cedar, Oregon ash, and two Douglas-firs, with a combination of small trees (less than 8 inches), shrubs, and non-native species present. Species include photinia and holly species as well as various weeds including English ivy and blackberry. The middle of the site includes the existing single-family residence and attached garage and one significant tree, an Alaskan yellow cedar. The shoreline area, west of the existing home, includes concrete and wooden steps, areas of lawn, pavers/stepping stones, two small storage structures, and an impervious patio area. Species near the shoreline and west of the home include rhododendron, hydrangea, ornamental rose, wisteria, acanthus mollis, fern, camelia, iris and lemon balm. Closer to the residence the slope sustained burn damage and contains shrubs affected by fire, volunteer weeds and perennials including cranesbill, candytuft, sow thistle, curly dock, and creeping buttercup. Areas adjacent to the shoreline include previous mitigation (10 feet wide) with some weeds and need of maintenance. Plants included in prior mitigation associated with the replaced bulkhead consist of red flowering current, ocean spray, snowberry, Indian plum and groundcover including bleeding heart, wild lily of the valley, sword fern, wild strawberry, western iris, western columbine, salal, and big-leaf lupine. The shoreline is hardened with a rock bulkhead along the entire frontage of the property. Substrate in front of the bulkhead includes silty sand, gravel, and small cobbles. An approximate 750 square foot dock, with three separate fingers, the longest extending approximately 84 feet from shore are present. An approximately 29-foot-long wood roof covers the area between two fingers.

**Significant Trees.** As described in the separately prepared Arborist Report, the site includes a total of sixteen significant trees with fifteen onsite and one offsite.





Figure 2. Forested area adjacent to residence at northern end of parcel (6.18.21)



Figure 3. Grassy area and driveway, eastern boundary of the parcel facing southeast (6.18.21)





Figure 4. Southern property line, facing east (6.18.21)



Figure 5. Southern property line showing middle of parcel, facing west (6.18.21)





Figure 6. Acanthus, ornamental roses, and plants affected by fire within area below house (6.18.21)



Figure 7. Overview of shoreline adjacent to existing residence (6.18.21)





Figure 8. Typical condition adjacent to existing residence (6.18.21)



Figure 9. Existing conditions and mitigation planting between shoreline and house (6.18.21)



### *3.1.1.2 Off-site Habitat*

The opportunity for the subject property to provide habitat is dependent upon the potential for the greater vicinity to act as a source for wildlife. Therefore, the presence or absence of habitat patches in the landscape surrounding the subject property is considered in this assessment.

The general habitat type used to categorize the study area vicinity is Urban and Mixed Environs in the Low to Moderate-density Zone (Johnson and O'Neil 2001). This habitat type contains light industry mixed with dense residential development and some natural open spaces.

The area surrounding the subject property is urban and dominated by developed single-family residential land uses. Habitat areas within approximately 1/4 mile of the project site include Lake Washington, Chism Beach Park, and less intensely developed residential lots, to the east and south. Some of these lots are larger and/or include more retained significant trees, resulting in areas of interconnecting canopy cover. However, these habitat patches in the vicinity are mostly disconnected from on-site habitat by roads and development.

### *3.1.1.3 Wildlife*

Wildlife species expected to utilize the project site most are species that are adapted to living in urban settings, and that are not closely associated with wetland or stream environments. These species generally include raccoons, opossums, Eastern gray squirrel, rats, mice, bats, and a number of birds like crows, starlings, robins, chickadees, and sparrows, to name a few.

During site investigations, no species of local importance were observed on the subject property, nor was habitat observed that is expected to have a primary association with any species of local importance given the local- and landscape-level conditions (see section 3.2).

## **3.2 Species of Local Importance**

The City of Bellevue designates habitat associated with species of local importance as a critical area [LUC 20.25H.150(B)]. As noted in 3.1.1.3, wildlife use on site is expected to be limited to mainly urban species. However, it is possible that some habitat on site could occasionally be used by species of local importance, especially given the proximity to Lake Washington. Species of local importance [LUC 20.25H.150(A)] for which suitable habitat exists on the study property are bald eagle, pileated woodpecker, Vaux's swift, merlin, purple martin, great blue heron, osprey, red-tailed hawk, and common loon. Potential fish use of Lake Washington includes Chinook and coho salmon, bull trout, and river lamprey. The likelihood of each of these species utilizing the property is discussed below.

Bald eagles are common foragers over Lake Washington, and active nests are known in the lake area. Eagles often perch in tall lakeside trees for foraging and resting. Eagle nests are most



commonly built near broken tops of tall trees, and in western Washington, nests in forks of large deciduous trees are also common. A few potential nesting trees are located on the subject property, but nearby areas provide more suitable nesting habitat, with greater tree density and less human disturbance. No eagles or nests were observed on site during the site visit. Bald eagles were removed from the State's endangered species list in 2017 and WDFW no longer maps known bald eagle nests nor requires coordination on bald eagle plans for specific properties.

Pileated woodpeckers commonly use large conifers for drumming and foraging. The species is often spotted in suburban areas in King County. Individuals may occasionally use the large trees on the property, although the species' preferred large snags are not present. Suitable nesting sites for this species do not exist on the property.

Vaux's swifts forage in open skies over forests, lakes, and rivers, where insects are abundant. Lake Washington provides suitable foraging habitat, and the species may be present at times over the study area. Nesting normally takes place in old-growth forest where large, hollow snags are available. The study parcel does not provide nesting habitat for this species.

Merlins occur throughout western Washington in winter and during migration. Breeding birds are rare in the state. Occurrences are spotty but not uncommon in suburban areas, and the study parcel may provide a small amount of suitable hunting or perching area in the non-breeding season.

Purple martin is Washington State's least common swallow. The species forages over open water and could potentially use the lake area adjacent to the study property for foraging. There are no suitable standing snags available on the subject property for cavity-nesting.

Great blue herons are widespread in western Washington. Outside of breeding, which occurs in tall trees, commonly away from human disturbance, the birds are most often observed in and along rivers, lakes, and wetlands. The adjacent waters of Lake Washington are likely used by foraging and resting herons throughout the year.

Osprey are very common over Lake Washington. Osprey typically nest in trees adjacent and above water. Five significant trees are within proximity of the shoreline and could be used for perching.

Red-tailed hawks nest in large trees, and although no active nests are present, the on-site trees may be suitable for the species. However, nests are generally located in more extensive



woodlands than the site offers. Red-tailed hawks are ubiquitous in this area and are likely to occasionally perch on or fly over the property.

Common loons prefer large, secluded lakes in the eastern part of the state for breeding. In winter, the species is most common on the coast and in saltwater bays and inlets, but can be seen on freshwater lakes near the coast as well. The open waters of Lake Washington are commonly used by wintering loons, but the species is unlikely to enter the study parcel.

Fall chinook and coho salmon migrate through Lake Washington. The lake itself does not provide spawning habitat. The lake is used by juveniles for migration, as well as rearing. Lake temperatures are warmer than preferred by these species, particularly in shallow areas, and outside of the existing pier, the shoreline area provides no cover for hiding or cooling. The lake area immediately adjacent to the property is unlikely to be used extensively by these species.

Bull trout are rare or non-existent in Lake Washington. The species has a narrow temperature tolerance range, and is very unlikely to occur near the shallow waters adjacent to the study area.

River lamprey have been identified in Lake Washington. According to the U.S. Fish and Wildlife Service, the species has declined, present status is unknown, and little is known about their biology.

### **3.2.1 Water Quality, Hydrology, and Slope Stability Functions**

In addition to habitat functions, vegetation also provides important water quality and hydrology functions. The ability of the site to perform these functions well is dependent upon the vegetation present (e.g., forested versus mowed lawn). Most non-developed portions of the site are vegetated and contain a mix of forested, scrub-shrub, and groundcover plants, both native and non-native. Areas closer to the shoreline include shrub and groundcover mitigation plantings and lawn. Vegetated (non-lawn) areas of the site are expected to intercept, allow for infiltration, and uptake rain and surface runoff, thereby functioning well to both filter water and reduce the quantity of water flowing down-gradient.

Furthermore, when located on slopes, vegetation can function to prevent soil erosion and improve slope stability. During heavy rain events, live vegetation and dead plant parts (e.g., dead stems, branches, leaves, etc.) prevent concentrated and potentially erosive flows from developing on steep slopes through rainwater interception. Vegetation growing on slopes also has the opportunity to provide slope stability through establishment of deep, inter-woven plant roots. Most native trees, shrubs, and groundcover plants perform this function well, while shallow-rooted weeds like Himalayan blackberry and English ivy, do not.



## 4. Local Regulations

---

### 4.1 Steep Slopes

In Bellevue, steep slope critical areas are regulated in Part 20.25H (Critical Areas Overlay District) of the LUC. According to LUC 20.25H.120(A)(2), slopes of 40 percent or more that have a rise of at least 10 feet and exceed 1,000 square feet in area are designated as geologic hazard areas and therefore subject to the regulations of LUC 20.25H.120 through 20.25H.145. According to LUC 20.25H.120(B)(1)(b), steep slope critical areas require a top-of-slope buffer of 50 feet. Further, pursuant to LUC 20.25H.120(C)(2), steep slopes require a toe-of-slope setback of 75 feet. Portions of the subject property are encumbered by an area of steep slope and its corresponding buffer and setback. However, the footprint of the existing primary structure is excluded from being within critical areas, buffers, or setbacks (LUC 20.25H.035.B). Impacts within critical areas, buffer, and/or setbacks are also subject to the mitigation sequencing criteria of LUC 20.25H.215.

#### 4.1.1 Critical Area Functions Based on Application of Code Standards

If the regulations and standards of the LUC were applied to this site, the existing single-family residence would remain and existing vegetated areas would continue to be available for wildlife use. Non-native and invasive species present elsewhere would presumably remain and may proliferate, potentially degrading habitat over time. These species would be expected to have detrimental effects on the native vegetation present by out-competing native plants for light, nutrients, and/or water resources. With the exception of the mitigation area adjacent to the shoreline, critical area functions and values would be expected to decrease with time if the property was maintained in its current state.

#### 4.1.2 Modification

Steep slope, steep slope buffer, and steep slope setbacks can only be modified through an approved critical areas report. The applicant must demonstrate that the modifications to the critical area, buffer, and setback, combined with any restoration efforts, will result in equivalent or better protection of critical area functions and values than would result from adhering to the standard application of the regulations (LUC 20.25H.230). Restoration activities would require monitoring and maintenance in accordance with LUC 20.25H.220, consistent with an approved restoration plan.



## 4.2 Habitat Associated with Species of Local Importance

As noted above, habitat associated with species of local importance are also regulated as a critical area according to LUC 20.25H.150(B). In this context, “habitat” is defined as “the place, including physical and biotic conditions, where a plant or animal usually occurs and is fundamentally linked to the distribution and abundance of species.”

As described in Section 3.2, there is no on-site evidence of the presence of habitat associated with species of local importance, other than Lake Washington itself, which has known Chinook and coho salmon use, and which may be used for foraging and resting for bird species. Some of the trees on site could also occasionally support migrating or foraging bird species. However, the habitat on site, including the lake area immediately adjacent to the property, is unlikely to be used extensively by any of these species. Furthermore, Washington Department of Fish and Wildlife (WDFW) Priority Habitat Species (PHS) data does not show the presence of any priority species within the vicinity. Therefore, it is The Watershed Company’s opinion that the site is unencumbered by critical area habitat that has a primary association with species of local importance.

## 4.3 Shorelines

Work within 200 feet of the ordinary high water mark (OHWM) of Lake Washington is subject to the standards and provisions of LUC 20.25E. The subject parcel is located within the Shoreline Residential environment designation and includes a standard 50-foot shoreline structure setback, measured from the OHWM. Additionally, the site includes a 50-foot shoreline vegetation conservation area (SVCA), also measured from the OHWM. Any significant trees removed within 50 feet of the OHWM requires replacement pursuant to LUC 20.25E.065.F.8.c.iii.

### 4.3.1 Modification

The shoreline structure setback can be reduced to a minimum of 25 feet, subject to the provisions of LUC 20.25E.065.F. Impacts within the SVCA must be calculated and offset pursuant to the debit/credit system outlined in LUC 20.25E.065.F8. Reduction of the shoreline structure setback and/or impacts within the SVCA do not require preparation of a critical areas report or shoreline special report; however, compliance with the specific shoreline provisions will be discussed in this report.



## 5. Project

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### 5.1 Description

The proposed project involves redevelopment of the residential parcel by removing the existing fire damaged single-family structure with attached garage and constructing a single-family residence with garage and pool. The new residence will include a total of three levels with the main entry on the second floor. Garage space is to be provided on the first level. The home will be situated to step down with the grade of the site, limiting the overall height of any portion of the structure, and minimizing topographic changes to the site. The foundation of the home would be constructed with a combination of pin piles and concrete retaining walls. Concrete piers would be installed near the shoreline to help with overall site stabilization.

The existing driveway extending from SE 15th Street will be reconfigured to provide improved access to the garage entry points, with an area of outdoor guest parking provided, as well. The proposed pool will be situated west of the new residence, just inside the standard shoreline structure setback. The closest point of the residence/pool will extend to within approximately 25 feet of the OHWM.

Unavoidable impacts to the steep slope critical area and associated buffer/setback will occur through site development. In addition, the pool will encroach within both the standard shoreline structure setback and SVCA. To compensate for these impacts, on-site mitigation is proposed.

### 5.2 Mitigation Sequencing

Pursuant to LUC 20.25H.215, attempts to avoid and minimize impacts to the on-site steep slope, buffer, and setback, as well as the shoreline structure setback and SVCA have been taken.

**Avoidance/Minimization.** The proposed project includes the construction of a single-family residence with garage and pool. The residence will be partially constructed within areas of regulated steep slope and buffer/setback. However, the use of engineered design principals, including shoring, retaining walls, and pin piles, will ensure that slope stability is improved over existing conditions. The project geologist (PanGeo, Inc.) has prepared separate documentation that discusses this concept in detail.

The proposal will also comply with all applicable provisions related to zoning setbacks, structural lot coverage, floor area ratio and building height. The goal in constructing a new residence is to create a structure that will contain all of the essential components of a modern-



day residence. Additionally, in designing the proposed residence, as is typical for most architects, the character and scale of surrounding residences was taken into account. This consideration was balanced with an understanding of the site's unique critical area and shoreline constraints, including the need to avoid and minimize impacts to the greatest extent feasible. Neighboring parcels within the vicinity are of various sizes and shapes, with generally larger parcels surrounding the subject parcel.

As documented by the project geotechnical engineer, construction of the proposed project will result in an increase in the factor of safety, as compared to the existing condition. Thus, construction directly on the slope will increase stabilization of the site. Therefore, the applicant proposes the use of modern design and construction techniques to construct a stable residence that simultaneously stabilizes the developed portions of the steep slope and associated buffers/setbacks.

With regard to City of Bellevue regulations, 'avoidance', in the context of a steep slope and corresponding buffer/setback, is intended to ensure protection of those functions and values provided by the slope. These functions are essentially two-fold – 1) slope stability, and 2) ecological functions. As discussed above, construction within the steep slope and buffer/setback can be accomplished such that stability of the slope is improved. Thus, avoidance of the impact would maintain a less stable slope. Meanwhile, the ecological functions provided by the slope and buffer/setback will be impacted by not avoiding the slope and buffer/setback. Namely, through the removal of vegetation. These vegetation functions can be replaced/replicated, though the impact would not be directly avoided.

In consideration of avoidance and minimization with development of a single-family residence, several factors contributed to site design/layout of the residence. These factors include:

- Existing topography: The existing residence on the parcel was constructed in 1946. At the time of this construction, or sometime preceding it, natural site topography was altered. Specifically, a flat level area was created near the middle of the site to accommodate the residence. Creation of the flat area significantly changed site topography, including the creation of man-made slopes. The new residence is to be constructed such that further modifications to site topography are minimized.
- Existing residence: The footprint of the existing residence, while located within proximity to the regulated steep slope, does not fall within any buffers/setbacks (LUC 20.25H.035.B). Thus, use of the existing footprint in redevelopment activities avoids impacts to critical areas/buffers/setbacks.



In consideration of the above factors, the applicant attempted to avoid and minimize impacts to the critical area/buffer/setback as follows:

The proposed residence is to be located within the same general area as the existing residence. This action takes use of the existing footprint, which is not encumbered by buffer/setback, along the previously created flat area. The new residence will include a slightly larger footprint than the existing residence, in keeping with the character and scale of surrounding residences (as described previously). The garage will blend into the topography of the site, with the roof of the garage roughly level with the grade behind it. Overall, impacts associated with the residence have been avoided to the extent feasible.

The residence has been positioned far enough from the shoreline to protect shoreline ecological functions (the residence/pool satisfies all shoreline impact/mitigation requirements found in LUC 20.25E.065.F.8.c.i) while still allowing the applicant proximity to the shoreline.

As demonstrated above, the proposed residence, garage, and pool have been located such that critical area and buffer/setback impacts have been avoided and minimized to the maximum extent feasible. In addition, construction of the new residence will result in an overall increase in site stability.

**Mitigation.** As mitigation for unavoidable, permanent steep slope and buffer/setback impacts, 958 SF of the site will be enhanced through invasive weed removal and native plant installation (see details in next section and Appendix A). An additional 130 SF of restoration plantings are to be provided within the shoreline setback to fully compensate for shoreline setback/SVCA impacts.

## 5.3 Impacts

### 5.3.1 Critical Area Impact Assessment

Project impacts to the critical area, buffer, and setback are summarized in Table 1, below, and discussed in detail in the following sub-sections. Impacts associated with the shoreline structure setback and SVCA are described in detail in Section 5.3.2.



Table 1. Project impact summary (quantities in square feet).

Critical Area Types and Locations	Proposed Impacts
Steep Slope Critical Area	564
50-ft Top of Slope Buffer & 75-ft Toe of Slope Setback Areas	853
TOTAL:	1,417

#### 5.3.1.1 Direct Impacts

Direct, permanent impacts resulting from the proposal on the steep slope area totals 564 SF. Permanent impacts, totaling 853 SF, are also proposed to steep slope buffer/setback areas. Together, these impacts total 1,417 SF. A total of nine significant trees will be removed as part of proposed activities.

These impacts have the potential to reduce the critical area functions discussed in Section 3.1 (habitat, water quality, hydrology, and slope stability). No significant adverse impacts to water quality and hydrology are anticipated from the proposal since the project must adhere to the City's regulations related to stormwater. Furthermore, the project has been developed in coordination with a geotechnical expert to ensure slope stability is maintained or improved.

#### 5.3.1.2 Indirect Impacts

Disturbances associated with the proposed redevelopment of the property, like increased light and noise, are types of indirect effects on wildlife and habitat on-site. Introduction of domestic pets and fertilizer/herbicide use in landscape areas are also potential sources of indirect effects to wildlife/habitat from the proposed use. However, indirect impacts are not likely to significantly increase since the parcel is currently developed and redevelopment is not expected to substantially change the use patterns of the site. The new residence will be slightly larger than the existing residence and impervious/hardscape surfaces will increase. Replacement of significant trees with smaller mitigation trees will result in a temporal loss as new trees mature.

#### 5.3.1.3 Cumulative Impacts

Impacts that result from collective changes over the landscape have the potential to affect habitat over time. The area within the vicinity of the project site is almost entirely developed with single-family residences. While some development or re-development can be expected, the overall character of the urban setting is not likely to change substantially. Residential neighborhoods, and other urban areas, do trend toward less mature native vegetation and more ornamental vegetation and impervious surface. The proposed project is consistent with this trend in that some vegetated areas will be replaced with development and increased impervious surface. However, the functions of retained habitat will be improved, not further



degraded, once proposed mitigation activities are considered. Retained habitat is not likely to be developed further because of the presence of regulatory critical areas (steep slopes).

In the event that nearby, undeveloped land is developed in a manner similar to what is proposed for this project, anticipated changes to habitat in the landscape may include a reduction in habitat quantity, increased habitat fragmentation and disturbance, and improved quality of retained habitat areas. Overall, the cumulative impacts to urban habitat from relatively small development proposals like this one are expected to be minor. This is primarily due to the fact that the majority of the surrounding area has already been developed and is unlikely to substantially change in the foreseeable future. Additionally, similar proposals may require restoration of degraded habitat areas (as does this one), in which case, wildlife habitat would benefit.

### 5.3.2 Shoreline Impact Assessment

Proposed improvements will occur within the standard 50-foot shoreline structure setback, as well as the 50-foot SVCA. Specifically, some pervious and vegetative cover will be converted to impervious cover. Exterior hardscape surfaces will occur adjacent to the pool, also within both the structure setback and SVCA. Impacts are to be calculated pursuant to LUC 20.25E.065.F.8.c.i. Table 2 below summarizes proposed impact calculations.

Table 2. Shoreline Debit Calculations

Existing Land Cover of Areas to be Impacted	Area (SF)	Existing Value	Final Value	Change in Land Cover Value	Total Debit
Lawn or Invasive Species	61	0.1	0	0.1	6.1
Bare Ground/Pervious	340	0.15	0	0.15	51
0-25 ft from OHWM					
Non-Native Vegetation	32	0.3	0.0	0.3	9.6
Native Vegetation	11	0.8	0	0.5	8.8
SUBTOTAL:					75.5
25-50 ft from OHWM					
Non-Native Vegetation	45	0.25	0.0	0.25	11.25
SUBTOTAL:					11.25
GRAND TOTAL:					86.75



As seen in Table 2 above, a total of 86.75 shoreline debits will result from proposed activities. This includes the expanded shed and associated hardscape surfaces within the standard shoreline structure setback and SVCA. Impacts will occur over areas of existing pervious surface, lawn, and native/non-native vegetation.

## 5.4 Mitigation

### 5.4.1 Critical Area Mitigation

The proposed mitigation plan (Appendix A) seeks to enhance a total of 958 SF of the site through invasive species removal and the planting of native trees, shrubs, and groundcover plants within areas adjacent to steep slope setback. These restoration actions will serve as mitigation for the 958 SF of new structural/impervious coverage within the steep slope and buffer/setback areas. Overall, the proposed project will result in equivalent protection of critical area functions and values that would result from application of the City's standard requirements.

### 5.4.2 Shoreline Mitigation

As mitigation for shoreline impacts summarized in Table 3, a total of 87.75 shoreline credits are proposed. Shoreline credits will include the planting of native vegetation adjacent to the shoreline (0-25 feet from the OHWM). Plantings will include native trees, shrubs, and groundcover. Retention of existing vegetation are also proposed. Shoreline credits are summarized in Table 3 below.

Table 3. Shoreline Credit Calculations

Proposed Land Cover Types	Area (SF)	Existing Value	Final Value	Change in Land Cover Value	Total Credit
Impervious Surface to Native Vegetation (0-25' from OHWM)	65	0	0.8	0.8	52
Bare ground to Native Vegetation (0-25' from OHWM)	65	0.25	0.8	0.55	35.75
		TOTAL:			87.75

Proposed shoreline credits, totaling 87.75, account for necessary mitigation to offset proposed impacts of 86.75 debits, pursuant to LUC 20.25E.065.F.8.c. Corresponding planting area equates to 130 SF. Proposed plantings will comply with the standards of LUC 20.25E.065.F.8.g. Overall, proposed mitigation measures will result in no net loss of shoreline ecological functions.



## 5.5 Critical Area Functional Lift Analysis

The proposed project, with incorporation of mitigation activities, will improve the functions of on-site critical areas. A qualitative analysis of the change in critical area functions is provided below. This analysis pertains to critical area/buffer/setback impacts only; shoreline specific mitigation compliance is discussed in the preceding section.

### 5.5.1 Water Quality, Hydrology, and Slope Stability

**Existing Conditions.** Existing steep slope and buffer/setback areas are primarily vegetated, with a combination of native trees and native and invasive plants (namely Himalayan blackberry, English ivy, sow thistle, and curly dock). Functions currently provided by vegetation on-site include rain and surface water interception and transpiration. Vegetation also improves soil quality, which generally improves water infiltration into the soil. Vegetation on slopes aids in slope stability. However, shallow rooted, invasive plants (i.e., English ivy and Himalayan blackberry) provide limited slope stabilization functions. English ivy impairs slope stability functions by destabilizing trees growing on slopes.

**Proposed Conditions.** Redevelop the site with a single-family residence in accord with geotechnical recommendations and stormwater regulations. Construction techniques will result in an improvement in slope stability. Significantly reduce noted invasive plants site-wide. Replace invasive plants with native trees, shrubs, and groundcovers.

**Net Result.** Slope stability is improved and water quality and hydrology functions are maintained, resulting in an overall net benefit to these functions on-site. New native plantings will have deeper root systems than the current areas of English ivy, reducing erosion potential and increasing slope stability.

### 5.5.2 Habitat

**Existing Conditions.** Existing steep slope and buffer/setback areas are developed with impervious surfaces and vegetated with native and non-native trees and areas of invasive plants. The existing vegetation assemblage, although disconnected from larger areas of vegetation, provides some habitat value to urban wildlife.

**Proposed Conditions.** Redevelop the site with a single-family residence in accord with geotechnical recommendations and stormwater regulations. Nine significant trees are to be removed. Significantly reduce noted invasive plants site-wide. Replace invasive plants with native trees, shrubs, and groundcovers.



**Net Result.** Decreased quantity of vegetated areas available to provide wildlife habitat. Increase the habitat functions of retained vegetated areas, thereby improving habitat quality. Alteration of foraging, perching, and nesting opportunities for wildlife through tree removal and native plant installation. New native trees, shrubs and groundcover will be installed. Overall, the quality of habitat will be increased by replacing invasive plants and enhancing understory areas with a dense and diverse native plant assemblage appropriate to the eco-region and growing conditions on-site. New plantings will provide food, cover, and nesting opportunities for wildlife.

## 6. Critical Areas Report Criteria

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As previously mentioned, steep slope critical areas, steep slope buffers, and steep slope setbacks, may be modified pursuant to LUC 20.25H.230. The Director may approve modifications if it can be shown that, through restoration, the modification will result in equivalent or better protection of critical area functions and values. The existing project site contains areas of low-functioning steep slope and buffer/setback.

Per the LUC, the critical areas report must meet specific decision criteria in order for the Director to approve a proposal to modify the regulated steep slope, critical area buffer, and steep slope setback. Compliance with the relevant critical areas report criteria is addressed below.

### LUC 20.25H.250(B) – Minimum Report Requirements

1. *Identification and classification of all critical areas and critical area buffers on the site;*
2. *Identification and characterization of all critical areas and critical area buffers on those properties immediately adjacent to the site;*

Critical areas and buffers located on or adjacent to the subject property are described in Sections 3 and 4, respectively.

3. *Identification of each regulation or standard of this code proposed to be modified;*

The subject site contains one area of steep slope, as defined by LUC 20.25H.120(A)(2). Pursuant to LUC 20.25H.120(B)(1)(b) and 20.25H.120(C)(2)(b), a 50-foot top-of-slope buffer and 75-foot toe-of-slope setback are required. The applicant proposes to construct a new residence within portions of the steep slope critical area and associated buffer/setback areas. Reconfigured paved areas and hardscapes will also occur within these areas.

3. *A habitat assessment consistent with the requirements of LUC 20.25H.165;*



Habitat is assessed in Section 3.1.1. Referenced requirements are addressed below under the Habitat Assessment subsection.

4. *An assessment of the probable cumulative impacts to critical areas resulting from development of the site and the proposed development;*

Cumulative impacts are discussed in Section 5.3.3.

5. *An analysis of the level of protection of critical area functions and values provided by the regulations or standards of this code, compared with the level of protection provided by the proposal. The analysis shall include:*
  - a. *A discussion of the functions and values currently provided by the critical area and critical area buffer on the site and their relative importance to the ecosystem in which they exist;*
  - b. *A discussion of the functions and values likely to be provided by the critical area and critical area buffer on the site through application of the regulations and standards of this Code over the anticipated life of the proposed development; and*
  - c. *A discussion of the functions and values likely to be provided by the critical area and critical area buffer on the site through the modifications and performance standards included in the proposal over the anticipated life of the proposed development;*

Discussion of current critical area functions is provided in Section 3. Critical area functions and values expected through application of standard regulations is provided in Section 4.1.1. The anticipated improvement of functions is provided in the functional lift evaluation in Section 5.5.

6. *A discussion of the performance standards applicable to the critical area and proposed activity pursuant to LUC 20.25H.160, and recommendation for additional or modified performance standards, if any;*

No species of local importance have been determined to have a primary association with the habitat available on the property, therefore additional performance standards (WDFW recommendations) do not apply. No additional or modified performance standards are proposed.

7. *A discussion of the mitigation requirements applicable to the proposal pursuant to LUC 20.25H.210, and a recommendation for additional or modified mitigation, if any; and*

A mitigation plan has been developed to meet the requirements of the LUC. No additional or modified mitigation is proposed.

8. *Any additional information required for the specific critical area as specified in the sections of this part addressing that critical area.*



None at this time.

#### **LUC 20.25H.165(A) – Habitat Assessment**

- 1. Detailed description of vegetation and habitat on and adjacent to the site;*

See Section 3.1.1.

- 2. Identification of any species of local importance that have a primary association with habitat on or adjacent to the site and assessment of potential project impacts to the use of the site by the species;*

No species of local importance have a primary association with on-site habitat. See Sections 3.1.1 and 3.2.

- 3. A discussion of any federal, state, or local special management recommendations, including Washington Department of Fish and Wildlife habitat management recommendations, that have been developed for species or habitats located on or adjacent to the site;*

Since no species have a primary association, special management recommendations do not apply.

- 4. A detailed discussion of the direct and indirect potential impacts on habitat by the project, including potential impacts to water quality;*

See Section 5.3.

- 5. A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing habitats and restore any habitat that was degraded prior to the current proposed use or activity and to be conducted in accordance with the mitigation sequence set forth in LUC 20.25H.215; and*

Mitigation sequencing is demonstrated in Section 5.2.

- 6. A discussion of ongoing management practices that will protect habitat after the site has been developed, including proposed monitoring and maintenance programs.*

A mitigation plan has been developed, described in Section 5.4, and included as Appendix A, which includes five years of mitigation site monitoring and maintenance.

#### **LUC 20.25H.255 – Critical areas report – Decision criteria**

To allow a steep slope critical area, buffer, or setback modification through an approved critical areas report, the Director must also find compliance with the decision criteria established in



LUC 20.25H.255(A) and (B). Compliance with the relevant sections listed in LUC 20.25H.255(A) and (B) is addressed below.

*A. General.*

- 1. The modifications and performance standards included in the proposal lead to levels of protection of critical area functions and values at least as protective as application of the regulations and standards of this code.*

See functional lift analysis in Section 5.5.

- 2. Adequate resources to ensure completion of any required mitigation and monitoring efforts.*

The mitigation plan specifies appropriate species for planting and planting techniques, describes proper maintenance activities, and sets forth performance standards to be met yearly during monitoring to ensure that restoration plantings will be maintained, monitored, and successfully established within the first five years following implementation. Furthermore, to ensure that the proposed plantings are installed and that the five-year maintenance and monitoring plan is implemented, the applicant will post an Installation Assurance Device and a Maintenance Assurance Device prior to building permit issuance.

- 3. The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site.*

Proposed mitigation will improve the functions of the on-site steep slope buffer and setback. Mitigation activities will have positive effects on nearby off-site areas as well by replacing invasive species with native trees, shrubs, and groundcover, which will improve habitat and slope stability functions.

- 4. The resulting development is compatible with other uses and development in the same land use district.*

The proposed structure is compatible with adjacent properties and surrounding development within the same land use district. Adjacent properties include residential land uses.

*B. Decision Criteria – Proposals to Reduce Regulation Critical Area Buffer*

- 1. The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in overall critical area or critical area buffer functions.*

A mitigation plan is included as Appendix A and a functional lift analysis is provided in Section 5.5.



2. *The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in the most important critical area or critical area buffer functions to the ecosystem in which they exist.*

See functional lift analysis in Section 5.5.

3. *The proposal includes a net gain in stormwater water quality function by the critical area buffer or by elements of the development proposal outside of the reduced regulated critical area buffer.*

See functional lift analysis in Section 5.5.

4. *Adequate resources to ensure completion of any required restoration, mitigation and monitoring efforts;*

The mitigation plan specifies appropriate species for planting and planting techniques, describes proper maintenance activities, and sets forth performance standards to be met yearly during monitoring to ensure that restoration plantings will be maintained, monitored, and successfully established within the first five years following implementation. Furthermore, to ensure that the proposed plantings are installed and that the five-year maintenance and monitoring plan is implemented, the applicant will post an Installation Assurance Device and a Maintenance Assurance Device prior to building permit issuance.

5. *The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site; and*

Proposed mitigation will improve the functions of on-site steep slopes and buffers/setbacks. Mitigation activities will have positive effects on nearby off-site areas as well by replacing invasive species with native trees, shrubs, and groundcover, which will improve habitat and slope stability functions.

6. *The resulting development is compatible with other uses and development in the same land use district. (Ord. 5680, 6-26-06, § 3)*

The proposed residence is compatible with adjacent properties and surrounding development within the same land use district. Adjacent properties include similarly sized single-family residences.

#### LUC 20.30P.140 – Decision criteria

- A. *The proposal obtains all other permits required by the Land Use Code; and*



The proposed project will obtain all applicable land use and construction permits, as required by the Land Use Code.

- B. The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer; and*

As outlined in Section 5.2, the proposed project will include the use of modern design and construction techniques to construct a stable residence that simultaneously stabilizes the developed portions of the steep slope and associated buffers/setbacks. The proposed residence, garage, and pool have been located such that critical area and buffer/setback impacts have been avoided and minimized to the maximum extent feasible.

- C. The proposal incorporates the performance standards of Part 20.25H LUC to the maximum extent applicable; and*

Demonstration on compliance with the performance standards of LUC 20.25H can be found within this document and within the accompanying geotechnical report.

- D. The proposal will be served by adequate public facilities including streets, fire protection, and utilities; and*

The project site is currently served by adequate public facilities. No changes will be made to the site that will necessitate an increase in service.

- E. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC 20.25H.210; except that a proposal to modify or remove vegetation pursuant to an approved Vegetation Management Plan under LUC 20.25H.055.C.3.i shall not require a mitigation or restoration plan; and*

Appendix A includes a mitigation plan.

- F. The proposal complies with other applicable requirements of this code.*

The proposal will comply with all other applicable requirements of this code.

#### **Additional LUC 20.25H Criteria**

Additional decision criteria related to geologic hazard areas is concurrently being addressed by PanGEO, Inc. in their geotechnical report, including the following sections:

- LUC 20.25H.125 – Performance standards – Landslide hazards and steep slopes
- LUC 20.25H.145 – Critical areas report – Approval of modification



## 7. Summary

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Redevelopment is proposed on a property containing a small area of naturally occurring steep slope, yet significantly encumbered by steep slope buffer and setback as well as a shoreline structure setback and SVCA. The existing residence on the parcel will be removed and replaced with a single-family residence. The driveway and other paved areas on-site will be configured. Proposed activities will result in new permanent impacts to the critical area, buffer, and setback, as well as the shoreline structure setback and SVCA.

Impacts to the shoreline structure setback and SVCA will be fully compensated for through the installation of native plantings within 50 feet of the shoreline. This approach is consistent with the criteria of the City's shoreline master program and will result in no net loss of shoreline ecological functions.

As mitigation for proposed impacts to the steep slope area and corresponding buffer and setback, a portion of the site will be enhanced with native vegetation. This approach follows the City's critical areas report process, as described within this document. The proposed planting plan results in equivalent protection of adjacent critical area functions and values than would be provided by the standard application of the geologic hazard area regulations. No loss of ecological function is expected as a result of proposed actions.



## References

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Johnson, D.H. and T.A. O'Neil. 2001. Wildlife-Habitat Relations in Oregon and Washington. Oregon State University Press. Corvallis, OR.



Appendix A

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## Mitigation Plan









SHORELINE OHWM (SURVEYED)

STEEP SLOPE AREA

10' FROM OHWM

INNER SHORELINE SETBACK (25' FROM OHWM)

SHORELINE SETBACK (50' FROM OHWM)

PREVIOUSLY INSTALLED MITIGATION AREA

TOE OF SLOPE

TOE OF SLOPE SETBACK (75')

TOE OF SLOPE BUFFER (50')

W1.0 - EXISTING CONDITIONS  
W2.0 - PROPOSED SITE PLAN  
W3.0 - TREE RETENTION AND PROTECTION PLAN  
W4.0 - PROPOSED SETBACK IMPACTS AND MITIGATION PLAN  
W5.0 - STEEP SLOPE IMPACT AND MITIGATION PLAN  
W6.0 - MITIGATION PLANTING PLAN  
W6.1 - PLANT INSTALLATION DETAILS AND NOTES  
W7.0 - MITIGATION PLAN NOTES

1. CRITICAL AREAS DELINEATED BY THE WATERSHED COMPANY ON 06/22/21. SURVEY DATED 06/08/21 RECEIVED FROM GHD.

**SHEET SIZE:**  
ORIGINAL PLAN IS 22" x 34".  
SCALE ACCORDINGLY.

**PROJECT MANAGER:** KB  
**DESIGNED:** AF  
**DRAFTED:** AF/MG  
**CHECKED:** KB/MG  
**JOB NUMBER:**  
210503  
**SHEET NUMBER:**  
**W1.0 OF 8**

PERMIT SET - NOT FOR CONSTRUCTION

SWASAND RESIDENCE  
MITIGATION PLAN  
PREPARED FOR CHRIS AND JAMI SWASAND  
PARCEL # 0624059080  
9518 SE 15TH ST  
BELLEVUE, WA



SWASAND RESIDENCE  
MITIGATION PLAN  
PREPARED FOR CHRIS AND JAMI SWASAND  
PARCEL # 0624059080  
9518 SE 15TH ST  
BELLEVUE, WA

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	09/09/2021	MITIGATION PLAN	MG/AF

SHEET SIZE:  
ORIGINAL PLAN IS 22" x 34".  
SCALE ACCORDINGLY.

PROJECT MANAGER: KB  
DESIGNED: AF  
DRAFTED: AF/MG  
CHECKED: KB/MF

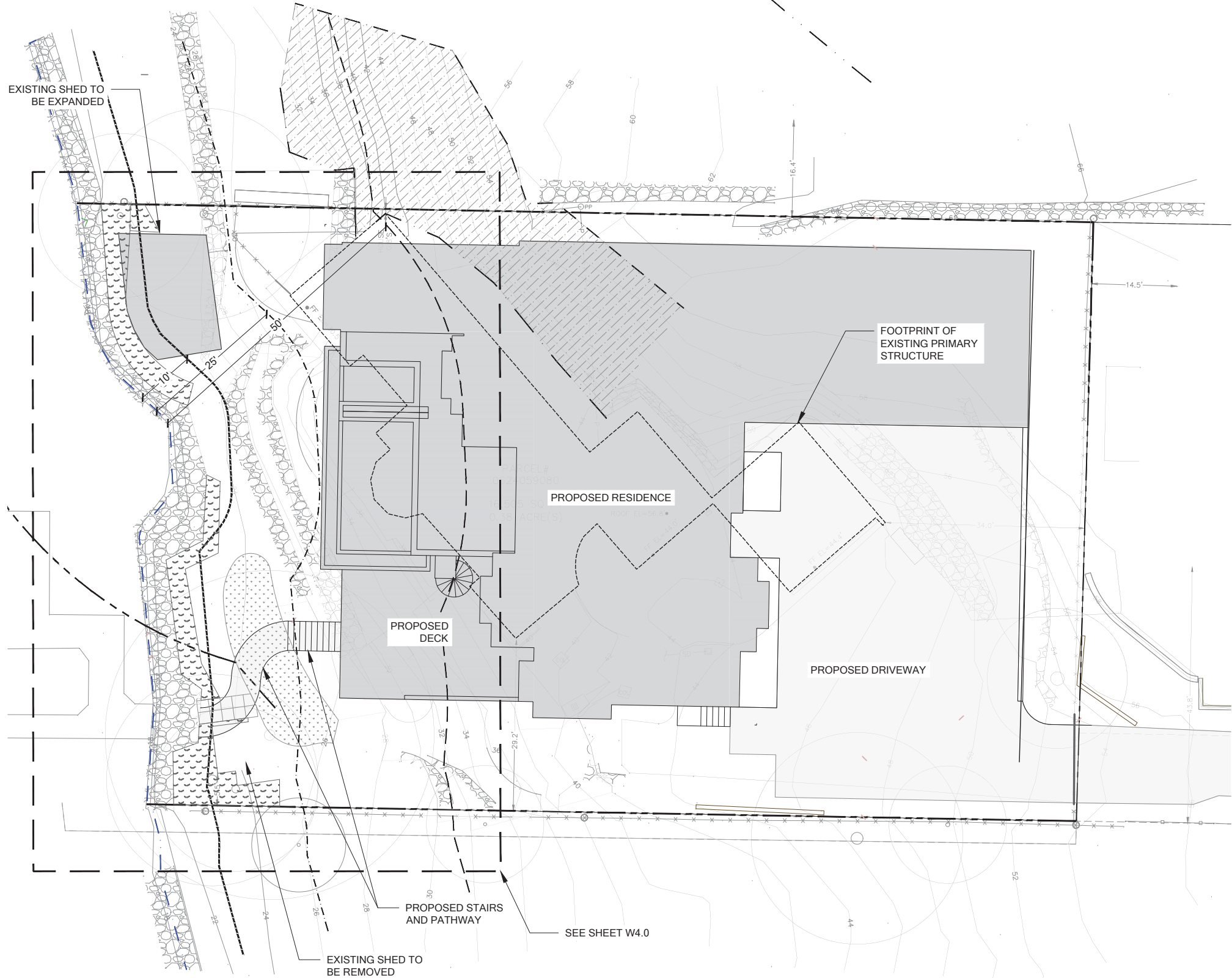
JOB NUMBER:

210503

SHEET NUMBER:

W2.0 OF 8

PERMIT SET - NOT FOR CONSTRUCTION



LEGEND

- SHORELINE OHWM (SURVEYED)
- STEEP SLOPE AREA
- 10' FROM OHWM
- INNER SHORELINE SETBACK (25' FROM OHWM)
- SHORELINE SETBACK (50' FROM OHWM)
- PREVIOUSLY INSTALLED MITIGATION AREA
- TOE OF SLOPE
- TOE OF SLOPE SETBACK (75')
- TOE OF SLOPE BUFFER (50')

NOTES

- SITE PLAN RECEIVED BY THE WATERSHED COMPANY FROM GELOTTE HOMMAS DRIVDAHL ARCHITECTURE ON 07/14/2021.

PROPOSED SITE PLAN

SCALE 1:10

0' 5' 10' 20' 40'





SWASAND RESIDENCE  
MITIGATION PLAN  
PREPARED FOR CHRIS AND JAMI SWASAND  
PARCEL # 0624059080  
9518 SE 15TH ST  
BELLEVUE, WA

SUBMITTALS & REVISIONS		BY	DATE	DESCRIPTION
NO.	DATE	DESCRIPTION	MITIGATION PLAN	MGJAF
1	09/09/2021	MITIGATION PLAN		

SHEET SIZE: ORIGINAL PLAN IS 22" x 34". SCALE ACCORDINGLY.		PROJECT MANAGER: KB
DESIGNED: AF		CHECKED: KB/MF
DRAFTED: AF/MG		JOB NUMBER:
210503		SHEET NUMBER:
W3.0 OF 8		

TREE TABLE

TAG	BOTANICAL NAME / COMMON NAME	EV / DEC	COMB DBH	SIGNIFICANT	REMOVE?
1	THUJA PLICATA / WESTERN RED CEDAR	E	25.0	YES	NO
2478	PSEUDOTSUGA MENZIESII / DOUGLAS-FIR	E	29.8	YES	NO
2479	CUPRESSUS NOOTKATENSIS / ALASKAN YELLOW CEDAR	E	22.5	YES	YES
2480	FRAXINUS LATIFOLIA / OREGON ASH	D	33.6	YES	NO
2481	PSEUDOTSUGA MENZIESII / DOUGLAS-FIR	E	16.0	YES	NO
2482	PSEUDOTSUGA MENZIESII / DOUGLAS-FIR	E	22.5	YES	NO
2483	ACER PLATANOIDES 'CRIMSON KING' / CRIMSON KING NORWAY MAPLE	D	12.4	YES	NO
2484	SALIX MATSUDANA 'TORTUOSA' / CORKSCREW WILLOW	D	16.2	YES	NO
2485	ACER MACROPHYLLUM / BIGLEAF MAPLE	D	24.1	YES	YES
2486	ACER MACROPHYLLUM / BIGLEAF MAPLE	D	19.0	YES	YES
2487	POPULUS TRICHOCARPA / BLACK COTTONWOOD	D	22.5	YES	YES
2488	PSEUDOTSUGA MENZIESII / DOUGLAS-FIR	E	28.0	YES	YES
2489	PSEUDOTSUGA MENZIESII / DOUGLAS-FIR	E	32.5	YES	YES
2490	PSEUDOTSUGA MENZIESII / DOUGLAS-FIR	E	25.6	YES	YES
2491	PINUS CONTORTA / SHORE PINE	E	13.7	YES	YES
2492	PINUS CONTORTA / SHORE PINE	E	12.4	YES	YES

LEGEND

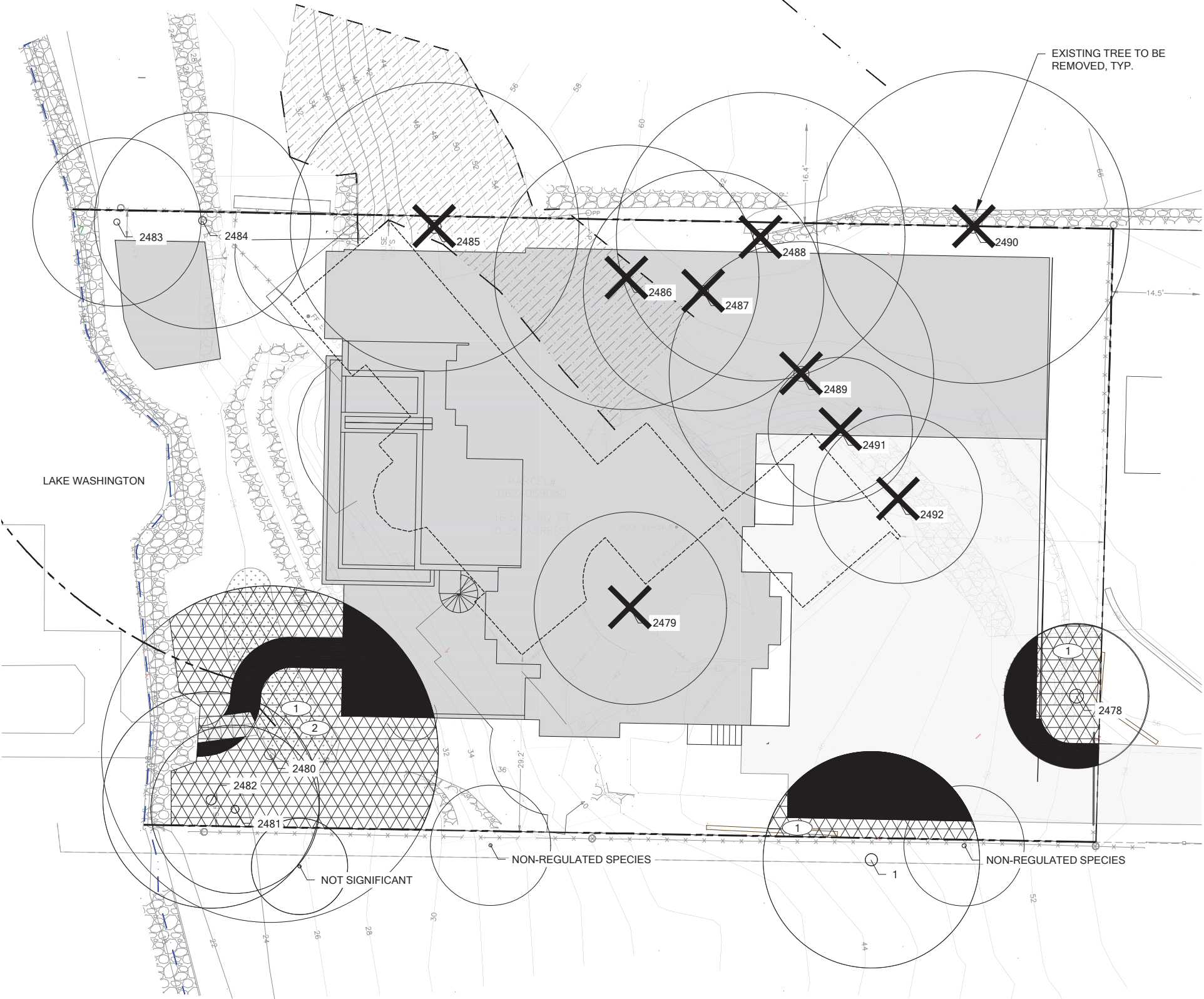
- PERMANENT ROOT ZONE IMPACTS (FOR TREES TO REMAIN)  
ROOT PROTECTION ZONE

TREE PROTECTION NOTES

1. ROOT PRUNING WITHIN DRIPLINES OF PROPOSED WORK SHALL BE DONE BY HAND.  
2. ADD 6" - 12" OF MULCH IF STORING OR MOVING MACHINERY OR EQUIPMENT WITHIN TREE DRIPLINES.

NOTES

1. A WATERSHED COMPANY ARBORIST CONDUCTED A SITE VISIT ON JUNE 18, 2021 TO INVENTORY ALL REGULATED TREES UNDER BELLEVUE LAND USE CODE.



TREE RETENTION AND PROTECTION PLAN

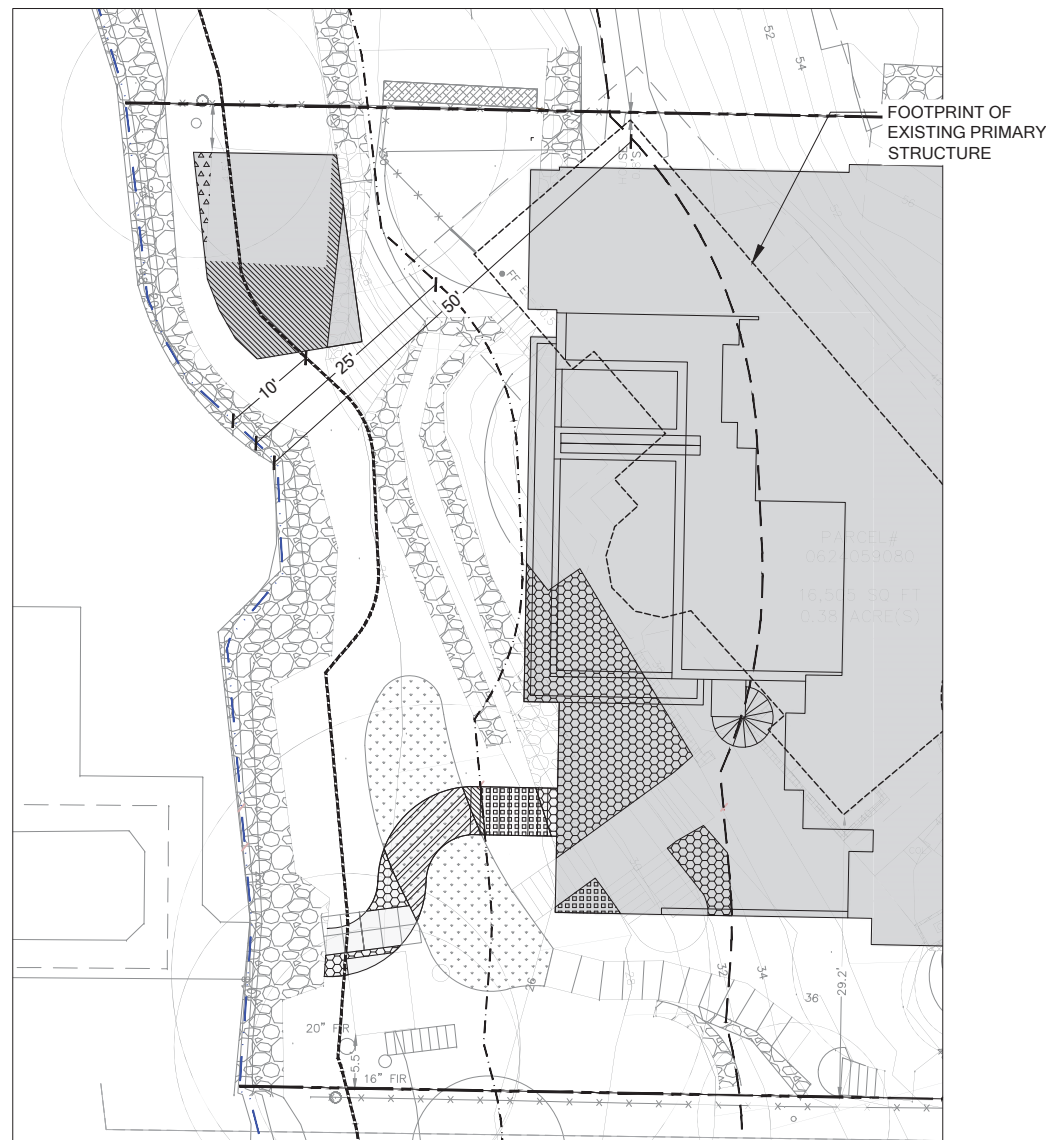
SCALE 1:10

0' 5' 10' 20' 40'












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SHORELINE IMPACT PLAN  
SCALE 1:10

### LEGEND

- |   |  |
|---|--|
|  | SHORELINE OHWM   |
|  | 10' FROM OHWM  |
|  | INNER SHORELINE SETBACK (25' FROM OHWM)                          |
|  | SHORELINE SETBACK (50' FROM OHWM)                                |
|  | LAWN TO IMPERVIOUS (61 SF)                                       |
|  | BARE GROUND/PERVIOUS FEATURES TO IMPERVIOUS (340 SF)             |
|  | NON-NATIVE VEGETATION TO IMPERVIOUS - 0' -25' FROM OHWM (32 SF)  |
|  | NON-NATIVE VEGETATION TO IMPERVIOUS - 25' -50' FROM OHWM (45 SF) |
|  | NATIVE PLANTING TO IMPERVIOUS - 0'-25' FROM OHWM (11 SF)         |

## SHORELINE DEBIT CALCULATIONS

EXISTING LAND COVER OF AREAS TO BE IMPACTED	AREA (SF)	EXISTING VALUE*	FINAL VALUE*	CHANGE IN LAND COVER VALUE	TOTAL DEBIT
LAWN OR INVASIVE SPECIES	61	0.1	0	0.1	6.1
BARE GROUND / PERVIOUS	340	0.15	0	0.15	51
NON-NATIVE VEGETATION (0'-25' FROM OHWM)	32	0.3	0	0.3	9.6
NON-NATIVE VEGETATION (25'-50' FROM OHWM)	45	0.25	0	0.25	11.25
NATIVE VEGETATION (0'-25' FROM OHWM)	11	0.8	0	0.8	8.8
TOTAL:					86.75

\*LAND COVER TYPE VALUES PER LUC 20.25E.065.F.8.D





## SHORELINE SETBACK IMPACTS AND MITIGATION PLAN

SCALE 1:10





# SHORELINE MITIGATION PLAN

### LEGEND

-  SHORELINE OHWM  
 10' FROM OHWM  
 INNER SHORELINE SETBACK (25' FROM OHWM)  
 SHORELINE SETBACK (50' FROM OHWM)  
 PREVIOUSLY INSTALLED MITIGATION AREA  
 TOTAL PROPOSED MITIGATION PLANTING (130 SF)

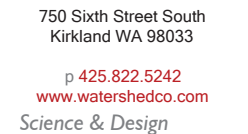
## SHORELINE CREDIT CALCULATIONS

	MITIGATION AREA TO BE RECLAIMED	AREA (SF)	EXISTING VALUE*	FINAL VALUE*	CHANGE IN LAND COVER VALUE*	TOTAL CREDIT
	IMPERVIOUS SURFACE TO NATIVE VEGETATION (0-25' FROM OHWM)	65	0	0.8	0.8	52
	BAREGROUND TO NATIVE VEGETATION (0-25' FROM OHWM)	65	0.25	0.8	0.55	35.75
			TOTAL:			87.75

\*LAND COVER TYPE VALUES PER LUC 20.25E.065.F.8.D







SWASAND RESIDENCE  
MITIGATION PLAN  
PREPARED FOR CHRIS AND JAMI SWASAND  
PARCEL # 0624059080  
9518 SE 15TH ST  
BELLEVUE, WA

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### LEGEND

EXISTING

- 
- SHORELINE OHWM (SURVEYED)
- STEEP SLOPE AREA
- 10' FROM OHWM
- INNER SHORELINE SETBACK (25' FROM OHWM)
- SHORELINE SETBACK (50' FROM OHWM)
- PREVIOUSLY INSTALLED MITIGATION AREA
- TOE OF SLOPE
- TOP OF SLOPE
- TOE OF SLOPE SETBACK (75')
- TOP OF SLOPE BUFFER (50')

## PROPOSED

- |   |   |
|---|---|
|  | STEEP SLOPE IMPACTS (564 SF)                |
|  | STEEP SLOPE BUFFER/SETBACK IMPACTS (853 SF) |
|  | STEEP SLOPE MITIGATION PLANTING (958 SF)    |

## NOTES

1. TOTAL STEEP SLOPE IMPACTS EQUAL 1,417 SF. HOWEVER, 459 SF OF STEEP SLOPE IMPACTS OVERLAP WITH SHORELINE IMPACTS AND ARE ACCOUNTED FOR ON SHEET W3. AS SUCH, THE REMAINING DIRECT STEEP SLOPE AND STEEP SLOPE BUFFER IMPACTS TOTAL 958 SF FOR WHICH 958 SF OF MITIGATION PLANTING IS PROPOSED

## STEEP SLOPE IMPACT AND MITIGATION PLAN

SCALE 1:10













## MITIGATION PLAN NOTES

THE PROPOSED MITIGATION PLAN SEEKS TO ENHANCE PORTIONS OF THE ON-SITE SHORELINE SETBACK IN ACCORDANCE WITH BELLEVUE LAND USE CODE CHAPTER 20.25E.060.D - MITIGATION REQUIREMENTS AND SEQUENCING. TO FULFILL THE REQUIREMENTS OF SHORELINE MITIGATION OUTLINED IN LUC 20.25E.065.F.8.C, 130 SQUARE FEET OF IMPERVIOUS SURFACE AND BARE GROUND WILL BE CONVERTED TO NATIVE PLANTINGS WITHIN THE SHORELINE SETBACK (SEE SHEET W4.0). IN ADDITION, 958 SF OF NATIVE PLANTINGS WILL BE ESTABLISHED ALONG THE SOUTHERN PROPERTY LINE TO OFFSET STEEP SLOPE IMPACTS (SEE SHEET W5.0). SPECIES INCORPORATED IN THE NATIVE PLANT PLAN INCLUDE PACIFIC CRABAPPLE, SITKA SPRUCE, WESTERN REDCEDAR, RED-OSIER DOGWOOD, INDIAN PLUM, PACIFIC NINEBARK, RED FLOWERING CURRANT, SNOWBERRY, WESTERN COLUMBINE, TUFTED HAIRGRASS, ROEMER'S FESCUE, BIG-LEAF LUPINE, OREGON GRAPE, SWORD FERN.

## MAINTENANCE AND MONITORING PLAN

THE SITE SHALL BE MAINTAINED AND MONITORED FOR FIVE YEARS FOLLOWING SUCCESSFUL INSTALLATION. COMPONENTS OF THE 5-YEAR MAINTENANCE AND MONITORING PLAN ARE DETAILED BELOW.

GOALS:

1. ESTABLISH DENSE NATIVE VEGETATION THAT IS APPROPRIATE TO THE ECO-REGION AND SITE.
2. LIMIT INVASIVE AND/OR NOXIOUS WEED COVER ON-SITE.
3. PROVIDE PERCHING, NESTING AND FORAGING HABITAT FOR NATIVE BIRDS.

## PERFORMANCE STANDARDS

THE STANDARDS LISTED BELOW WILL BE USED TO JUDGE THE SUCCESS OF THE INSTALLATION OVER TIME. IF PERFORMANCE STANDARDS ARE MET AT THE END OF YEAR 5, THE SITE WILL THEN BE DEEMED SUCCESSFUL AND THE PERFORMANCE SECURITY BOND WILL BE ELIGIBLE FOR RELEASE BY THE CITY OF BELLEVUE.

1. SURVIVAL:
  - a. ACHIEVE 100% SURVIVAL OF INSTALLED PLANTS BY THE END OF YEAR 1. THIS STANDARD CAN BE MET THROUGH PLANT ESTABLISHMENT OR THROUGH REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS.
  - b. ACHIEVE 80% SURVIVAL OF ALL PLANTED TREES AND SHRUBS IN YEARS 3 THROUGH 5 AFTER PLANTING. THIS STANDARD CAN BE MET THROUGH PLANT ESTABLISHMENT OR THROUGH REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS.
2. NATIVE PLANT COVER:
  - a. ACHIEVE OVERALL 80% AREAL COVERAGE OF NATIVE VEGETATION BY YEAR 5.
  - b. DEMONSTRATE A MINIMUM COMBINED 5-YEAR TREE AND SHRUB COVERAGE OF 60%.
3. INVASIVE COVER: AERIAL COVER FOR ALL NON-NATIVE, INVASIVE AND NOXIOUS WEEDS WILL NOT EXCEED 10% AT ANY YEAR DURING THE MONITORING PERIOD. INVASIVE PLANTS INCLUDE BUT ARE NOT LIMITED TO HIMALAYAN BLACKBERRY (*RUBUS ARMENIACUS*), CUT LEAF BLACKBERRY (*RUBUS LACINIATUS*) KNOTWEEDS (*POLYGONUM CUSPIDATUM* AND OTHERS), REED CANARY GRASS (*PHALARIS ARUNDINACEA*), CHERRY (HEDGE) LAUREL (*PRUNUS LAUROCERASUS*), ENGLISH HOLLY (*ILEX AQUIFOLIUM*), AND IVY SPECIES (*HEDERA SPP.*)

## MONITORING METHODS

THIS MONITORING PROGRAM IS DESIGNED TO TRACK THE SUCCESS OF THE MITIGATION SITE OVER TIME AND TO MEASURE THE DEGREE TO WHICH THE SITE IS MEETING THE PERFORMANCE STANDARDS OUTLINED IN THE PRECEDING SECTION.

AN AS-BUILT PLAN WILL BE PREPARED BY THE RESTORATION PROFESSIONAL PRIOR TO THE BEGINNING OF THE MONITORING PERIOD. THE AS-BUILT PLAN WILL BE A MARK-UP OF THE PLANTING PLANS INCLUDED IN THIS PLAN SET. THE AS-BUILT PLAN WILL DOCUMENT ANY DEPARTURES IN PLANT PLACEMENT OR OTHER COMPONENTS FROM THE PROPOSED PLAN.

MONITORING WILL TAKE PLACE ONCE ANNUALLY IN THE FALL FOR FIVE YEARS. YEAR-1 MONITORING WILL COMMENCE IN THE FIRST FALL SUBSEQUENT TO INSTALLATION. THE FORMAL MONITORING VISIT SHALL RECORD AND REPORT THE FOLLOWING IN AN ANNUAL REPORT SUBMITTED TO THE CITY OF BELLEVUE:

1. VISUAL ASSESSMENT OF THE OVERALL SITE.
2. YEAR-1 COUNTS OF LIVE AND DEAD PLANTS BY SPECIES. YEAR-2 THROUGH YEAR-5 COUNTS OF ESTABLISHED NATIVE TREES AND SHRUBS BY SPECIES, TO THE EXTENT FEASIBLE.
3. COUNTS OF DEAD PLANTS WHERE MORTALITY IS SIGNIFICANT IN ANY MONITORING YEAR.
4. ESTIMATE OF NATIVE COVER IN THE MITIGATION AREA.
5. ESTIMATE OF NON-NATIVE, INVASIVE WEED COVER IN THE MITIGATION AREA.
6. TABULATION OF ESTABLISHED NATIVE SPECIES, INCLUDING BOTH PLANTED AND VOLUNTEER SPECIES
7. PHOTOGRAPHIC DOCUMENTATION FROM AT LEAST THREE FIXED REFERENCE POINTS.
8. ANY INTRUSIONS INTO OR CLEARING OF THE PLANTING AREAS, VANDALISM, OR OTHER ACTIONS THAT IMPAIR THE INTENDED FUNCTIONS OF THE MITIGATION AREA.
9. RECOMMENDATIONS FOR MAINTENANCE OR REPAIR OF ANY PORTION OF THE MITIGATION AREA.

## MAINTENANCE

THE SITE WILL BE MAINTAINED IN ACCORDANCE WITH THE FOLLOWING INSTRUCTIONS FOR AT LEAST FIVE YEARS FOLLOWING COMPLETION OF CONSTRUCTION:

1. FOLLOW THE RECOMMENDATIONS NOTED IN THE PREVIOUS MONITORING SITE VISIT.
2. GENERAL WEEDING FOR ALL PLANTED AREAS:
  - a. AT LEAST TWICE YEARLY, REMOVE ALL COMPETING WEEDS AND WEED ROOTS FROM BENEATH EACH INSTALLED PLANT AND ANY DESIRABLE VOLUNTEER VEGETATION TO A DISTANCE OF 18 INCHES FROM THE MAIN PLANT STEM. WEEDING SHOULD OCCUR AT LEAST TWICE DURING THE SPRING AND SUMMER. FREQUENT WEEDING WILL RESULT IN LOWER MORTALITY, LOWER PLANT REPLACEMENT COSTS, AND INCREASED LIKELIHOOD THAT THE PLAN MEETS PERFORMANCE STANDARDS BY YEAR-5.
  - b. MORE FREQUENT WEEDING MAY BE NECESSARY DEPENDING ON WEED CONDITIONS THAT DEVELOP AFTER PLANT INSTALLATION.
  - c. DO NOT WEED THE AREA NEAR THE PLANT BASES WITH STRING TRIMMER (WEED WHACKER/WEED EATER). NATIVE PLANTS ARE EASILY DAMAGED OR KILLED, AND WEEDS EASILY RECOVER AFTER TRIMMING.
  - d. SELECTIVE APPLICATIONS OF HERBICIDE MAY BE NEEDED TO CONTROL INVASIVE WEEDS, ESPECIALLY WHEN INTERMIXED WITH NATIVE SPECIES. HERBICIDE APPLICATION, WHEN NECESSARY, SHALL BE CONDUCTED ONLY BY A STATE-LICENSED APPLICATOR.
3. APPLY SLOW-RELEASE, GRANULAR FERTILIZER TO EACH INSTALLED PLANT ANNUALLY IN THE SPRING (BY JUNE 1) OF YEAR-2 THROUGH YEAR-5.
4. REPLACE MULCH AS NECESSARY TO MAINTAIN A 4-INCH-THICK LAYER, RETAIN SOIL MOISTURE, AND LIMIT WEEDS.
5. REPLACE EACH PLANT FOUND DEAD IN THE MONITORING VISITS DURING THE UPCOMING DORMANT SEASON (OCTOBER 15 TO MARCH 1), FOR BEST SURVIVAL RESULTS.
6. THE PROPERTY OWNER WILL ENSURE THAT WATER IS PROVIDED FOR THE ENTIRE PLANTED AREA WITH A MINIMUM OF 1 INCH OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION, THROUGH HAND-WATERING OR THE OPERATION OF A TEMPORARY OR PERMANENT IRRIGATION SYSTEM. LESS WATER IS NEEDED FROM JANUARY THROUGH MAY AND OCTOBER THROUGH DECEMBER.

## GENERAL WORK SEQUENCE

## SITE PREPARATION

1. MANUALLY CLEAR LAWN AND ORNAMENTAL VEGETATION FROM MITIGATION AREA DURING SPRING AND/OR SUMMER MONTHS (I.E., AVOID CREATING EXPOSED SOIL CONDITIONS DURING THE WINTER STORM SEASON).
  - a. REMOVE INVASIVE SPECIES (I.E., HIMALAYAN BLACKBERRY, ENGLISH IVY) THAT MAY BE PRESENT, IN ACCORDANCE WITH KING COUNTY NOXIOUS WEED BEST MANAGEMENT PRACTICES. FOR MORE INFORMATION:  
[HTTPS://KINGCOUNTY.GOV/SERVICES/ENVIRONMENT/ANIMALS-AND-PLANTS/NOXIOUS-WEEDS.ASPX](https://kingcounty.gov/services/environment/animals-and-plants/noxious-weeds.aspx).
  - b. AVOID AND MINIMIZE DISTURBANCE AND/OR COMPACTION TO ROOTS OF ESTABLISHED NATIVE TREES TO BE RETAINED WHEN REMOVING VEGETATION FROM WITHIN TREE DRIPLINES.
2. BLANKET-MULCH CLEARED AREAS OR RING MULCH AROUND INSTALLED AND EXISTING NATIVE PLANTS WITH WOOD MULCH, FOUR INCHES THICK.
  - a. ENSURE MULCH DOES NOT TOUCH STEMS OF EXISTING (OR INSTALLED) VEGETATION. SEE PLANTING DETAIL ON SHEET W5.

## MITIGATION PLANTING AND IRRIGATION

1. INSTALL MITIGATION PLANTS DURING THE DORMANT SEASON FOR BEST SURVIVAL (OCTOBER 15 - MARCH 1).
  - a. PREPARE A PLANTING PIT FOR EACH PLANT THROUGH BLANKET WOOD MULCH AND INSTALL PER THE PLANTING DETAILS.
2. INSTALL A TEMPORARY OR PERMANENT, ABOVE GROUND IRRIGATION SYSTEM TO PROVIDE FULL COVERAGE TO ALL INSTALLED PLANTS WITHIN THE MITIGATION AREA. ALTERNATIVELY, THE HOMEOWNER SHALL ENSURE ADEQUATE HAND WATERING DURING DRY MONTHS.

## MATERIAL SPECIFICATIONS AND DEFINITIONS

1. FERTILIZER (FOR NEAR AQUATIC ENVIRONMENTS): SLOW RELEASE, PHOSPHORUS-FREE GRANULAR FERTILIZER. LABEL MUST INDICATE THAT PRODUCT IS SAFE FOR AQUATIC ENVIRONMENTS. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR USE. KEEP FERTILIZER IN WEATHER-TIGHT CONTAINER WHILE ON-SITE. FERTILIZER IS ONLY TO BE APPLIED IN YEAR-2 AND YEAR-3, NOT IN YEAR-1.
2. IRRIGATION SYSTEM: AUTOMATED SYSTEM CAPABLE OF DELIVERING AT LEAST ONE INCH OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION.
3. RESTORATION PROFESSIONAL: THE WATERSHED COMPANY [425-822-5242] PERSONNEL, OR OTHER PERSONS QUALIFIED TO EVALUATE ENVIRONMENTAL RESTORATION PROJECTS.
4. WOODCHIP MULCH: "ARBORIST CHIPS" (CHIPPED WOODY MATERIAL) APPROXIMATELY ONE TO THREE INCHES IN MAXIMUM DIMENSION (NOT SAWDUST). THIS MATERIAL IS COMMONLY AVAILABLE IN LARGE QUANTITIES FROM ARBORISTS OR TREE PRUNING COMPANIES. MULCH SHALL NOT CONTAIN APPRECIABLE QUANTITIES OF GARBAGE, PLASTIC, METAL, SOIL, DIMENSIONAL LUMBER, OR CONSTRUCTION/DEMOLITION DEBRIS.

## CONTINGENCIES

IF THERE IS A SIGNIFICANT PROBLEM WITH THE MITIGATION AREAS MEETING PERFORMANCE STANDARDS, A CONTINGENCY PLAN WILL BE DEVELOPED AND IMPLEMENTED. CONTINGENCY PLANS CAN INCLUDE, BUT ARE NOT LIMITED TO: SOIL AMENDMENT, ADDITIONAL PLANT INSTALLATION, AND PLANT SUBSTITUTIONS OF TYPE, SIZE, QUANTITY, AND LOCATION.



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www.watershedco.com

Science &amp; Design

SWASAND RESIDENCE

## MITIGATION PLAN

PARCEL # 0624059080

9518 SE 15TH ST

BELLEVUE, WA

FILL ENAMEL

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## MITIGATION PLAN NOTES

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